Chemical Week

January 16, 1954

Price 35 cents

Grace Chemical's top echelon: their $45-million cornerstone underpins an edifice . . . . p. 14

Flouridation foes berate chemical makers, pose new threat to industry esteem . . . . . p. 30

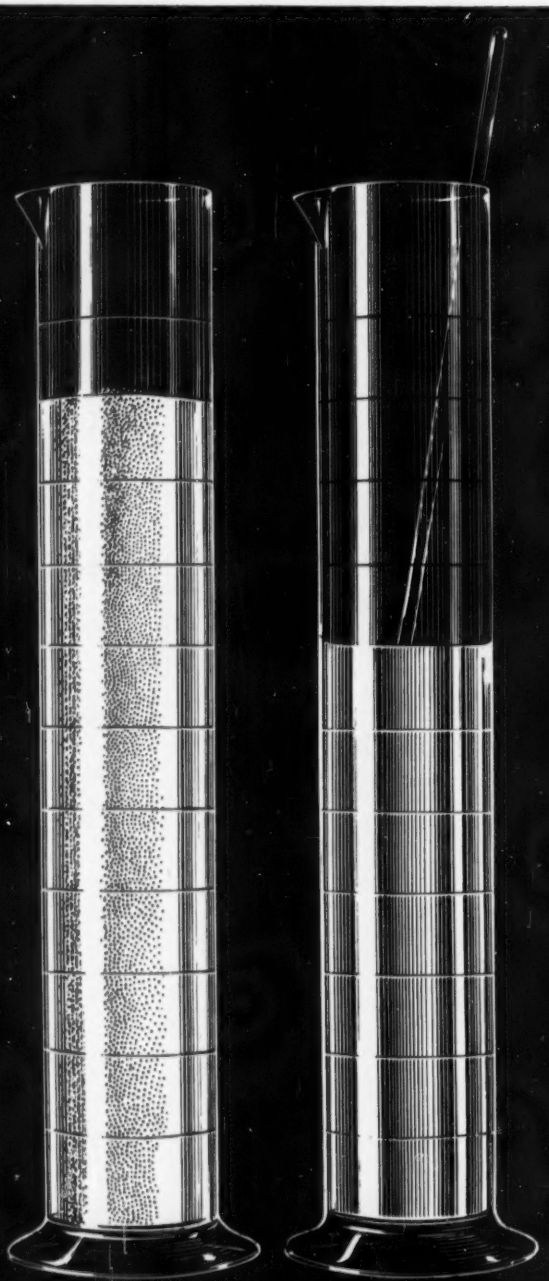
Get the stuff in, get it out, cut costs; that's today's traffic manager's chore . . . . . p. 40

The farmer must be sold to make soil conditioners really big business; here's outlook . . . . p. 61

Carbon bisulfide output forges ahead—quietly, steadily, unspectacularly . . . . . p. 77

A McGRAW-HILL PUBLICATION

YOU CAN "SHRINK" SODA ASH TO SAVE SPACE...CUT COSTS



In many of the chemical process industries, wet storage of soda ash provides a means of reducing storage space and increasing handling efficiency. In slurry form, soda ash occupies 30% less space than an equal weight of the dry material. Conversely, it is possible to store over 40% more soda ash as a slurry in the same volume now required for dry storage. In addition, the wet systems permit greater ease of handling and substantial savings in installation and processing costs.

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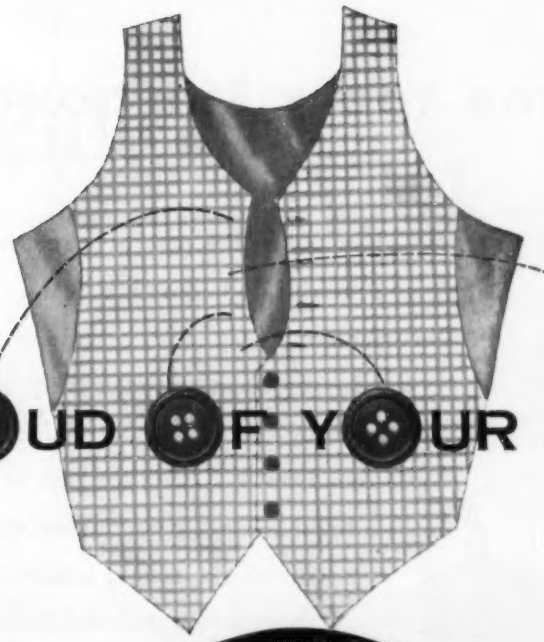

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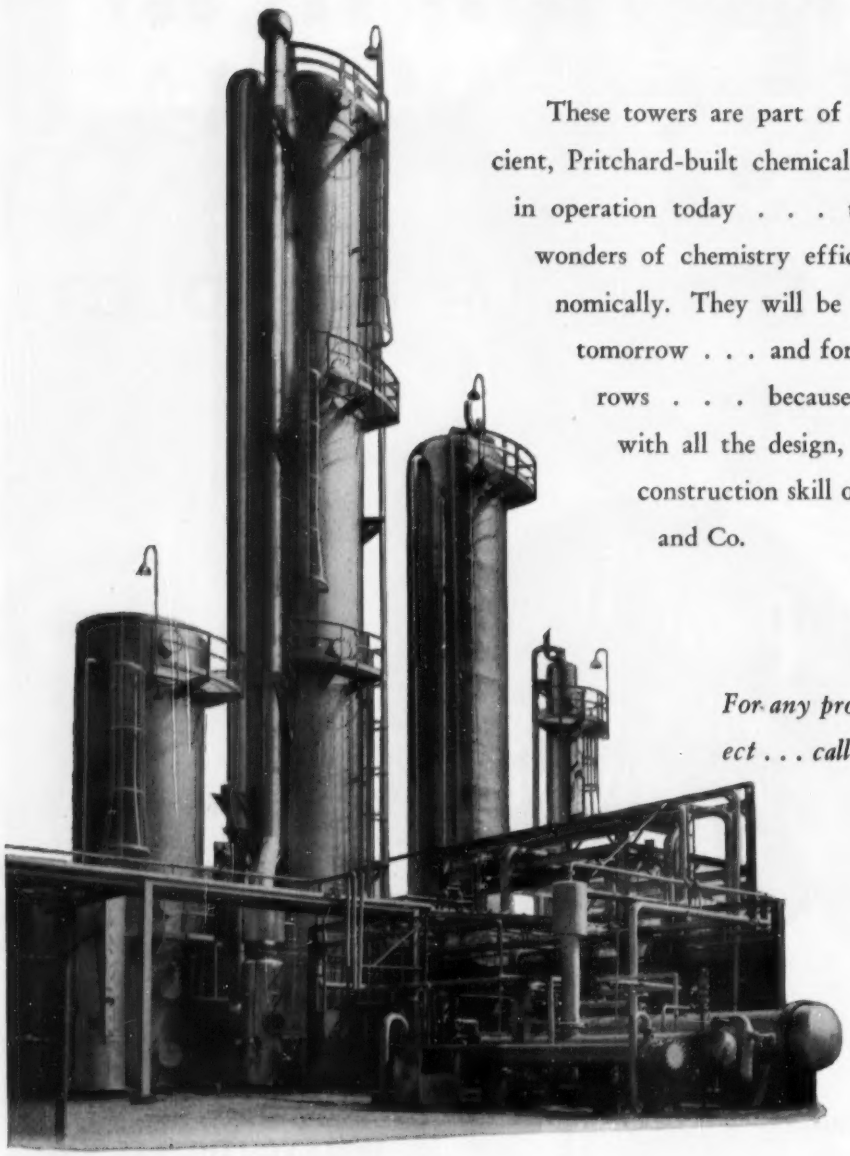

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Chemical Week

Volume 74 — January 16, 1954 — Number 3

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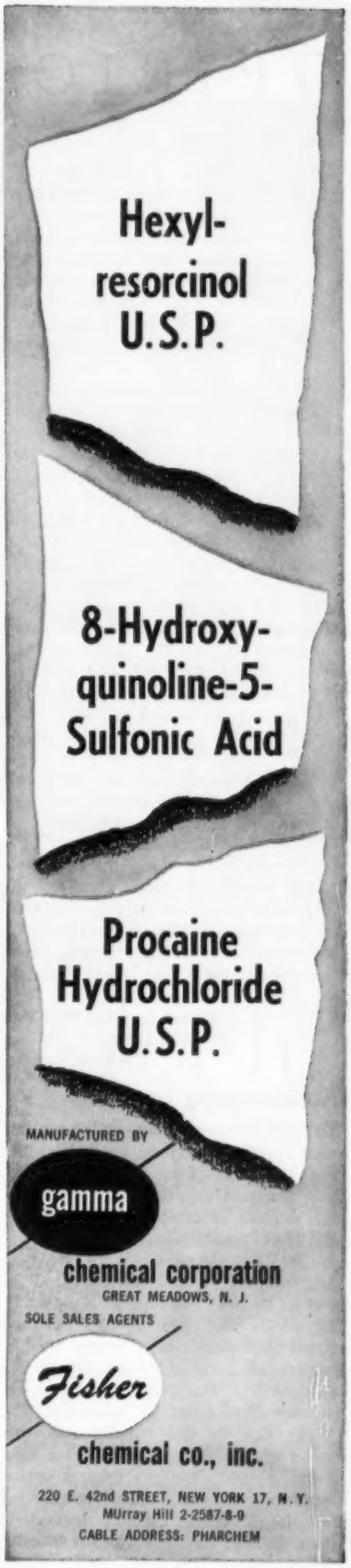

OPINION. . . . . .

Narcotic Ink?

TO THE EDITOR: . . . I have been annoyed—and especially in recent weeks—to see all the cheery pronouncements of what business will be like in 1954, which are being issued by many business executives . . . I am no pessimist but I can't help but wonder if black ink isn't a narcotic—and I mean the black ink that has been a basic and taken-for-granted part of corporation ledgers for, lo, these many years . . .

Perhaps it has dulled the sensitivities of some men, perhaps it has narrowed perspectives, perhaps it has been just plain numbing to thought or, worse still, a heady opiate . . .

For some time past, it has been pretty difficult for any business to lose money, it has been rather difficult for any executive to mismanage a company to such a degree that it could be plunged into the red . . .

Many of today's top executives . . . and particularly in the fast-growing chemical industry . . . just haven't had to face up to real problems . . . They're young . . . they didn't have to sweat through a depression . . . Often they have just had to build plants and have the output sold before the last reactor was installed . . .

It may be different soon . . . and in my opinion, some of the more cheery might dwell thoughtfully on what they will do . . . how they can tighten up their organizations so that they can withstand the strange-to-them circumstances that they may encounter . . .

THOMAS L. CHELTENHAM
Consulting Engineer
Boston, Mass.

Antidumping Laws

TO THE EDITOR: Congratulations on your excellent story on U. S. "dumping" problems (*Dec. 26*) and for the fair presentation of both sides of the current controversy. . . . Three additional points might be mentioned:

(1) The changes sought in the Antidumping Act are not intended to protect or justify dumping. The flooding of U. S. markets with surplus goods at artificially low prices, in the pattern of I. G. Farben, should be stopped . . . this original purpose of the law should not be weakened.

(2) But in the current case of rayon staple fibers, imports are not being dumped on U. S. markets in large quantities at artificial prices. In fact, imports have actually decreased their share of the U. S. market from a prewar high of 74% to a postwar high of 32% to a current level of about 23%.

With U. S. producers consistently taking a larger share of the market away from imports, there seems to be no basis for a finding of dumping or of injury to U. S. companies.

(3) On the question of price-cutting, the importers have not been setting artificial prices to undercut domestic producers. They have done no more than meet the domestic price decline in cotton and rayon fibers . . .

This is one of the instances where importers and domestic producers should be able to cooperate in devising fair and up-to-date legislation that strikes at the evil of predatory dumping without using a meat-ax on legitimate trade.

WM. J. BARNHARD
Sharp & Bogan
Washington, D. C.

Treated Trees

TO THE EDITOR: Here are two questions raised by your news article (*Dec. 26*) on the chemical treatment of Christmas trees.

Do the stunted black spruce of Minnesota, to which you refer, grow to a uniform height of three feet or is a three-foot section cut from the very top of a much higher tree?

Is chemical treatment necessitated by the characteristics of the black spruce or by the year-round nature of the Halverson chemical treating operation? . . .

DOUGLAS T. HORNER
Southern Resin Glue Co.
Fayetteville, N. C.

Our Minnesota-roaming editor assures us that the trees grow to a neat three feet. Treatment is necessitated by both factors—the trees are scrubby and they can't stand long-term storage.—ED.

Cramped Headline

TO THE EDITOR: Your Dec. 26 issue attracted my attention, particularly the headline of your article "Keeping Xmas Their Own Way."

I have a personal phobia against "Xmas," and think it is particularly bad taste in a magazine of your quality. If the article is worth publishing, it is worth using the name "Christmas."

Many organizations are campaigning now for the elimination of the abreviated form, and it would certainly be of help if the leading periodicals in this country would use the proper terminology. . . .

WALLACE F. ARMSTRONG
Plant Manager
Ethyl Corp.
Houston, Tex.

Conventionally we use "Christmas" in text, have to use the abbreviation to fit headlines.

However, it is significant, and interesting too, that the "X" in Xmas isn't an English "X" but a Greek "Chi." This letter has been used since earliest times, in churches and elsewhere, as a symbol for Christ.—ED.

DATES AHEAD

Commercial Chemical Development Assn., winter meeting, Statler hotel, St. Louis, Mo., Jan. 19.

Assn. of American Soap and Glycerine Producers, annual meeting, Waldorf-Astoria hotel, New York, N. Y., Jan. 26-28.

Chlorine Institute, Inc., annual meeting, Biltmore hotel, New York, N. Y., Jan. 27.

Drug, Chemical and Allied Trade Section, New York Board of Trade, annual dinner, Waldorf-Astoria hotel, New York, N. Y., March 4.

Chemical Institute of Canada, division of organic chemistry's third symposium, McGill Univ., Montreal, Ont., March 8-9.

American Chemical Society, division of rubber chemistry, 65th meeting, Brown hotel, Louisville, Ky., Apr. 14-16.

Assn. of Consulting Chemists and Chemical Engineers, symposium and banquet. Belmont Plaza hotel, New York, N.Y., Apr. 27.

Forest Products Research Society, national meeting, Grand Rapids, Mich., May 5-7.

American Water Works Assn., annual conference, Seattle, May 23-28.

American Plant Food Council, annual meeting, Homestead, Hot Springs, Va., June 10-13.

American Society for Testing Materials, annual meeting, Sherman and Morrison hotels, Chicago, June 13-18.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.

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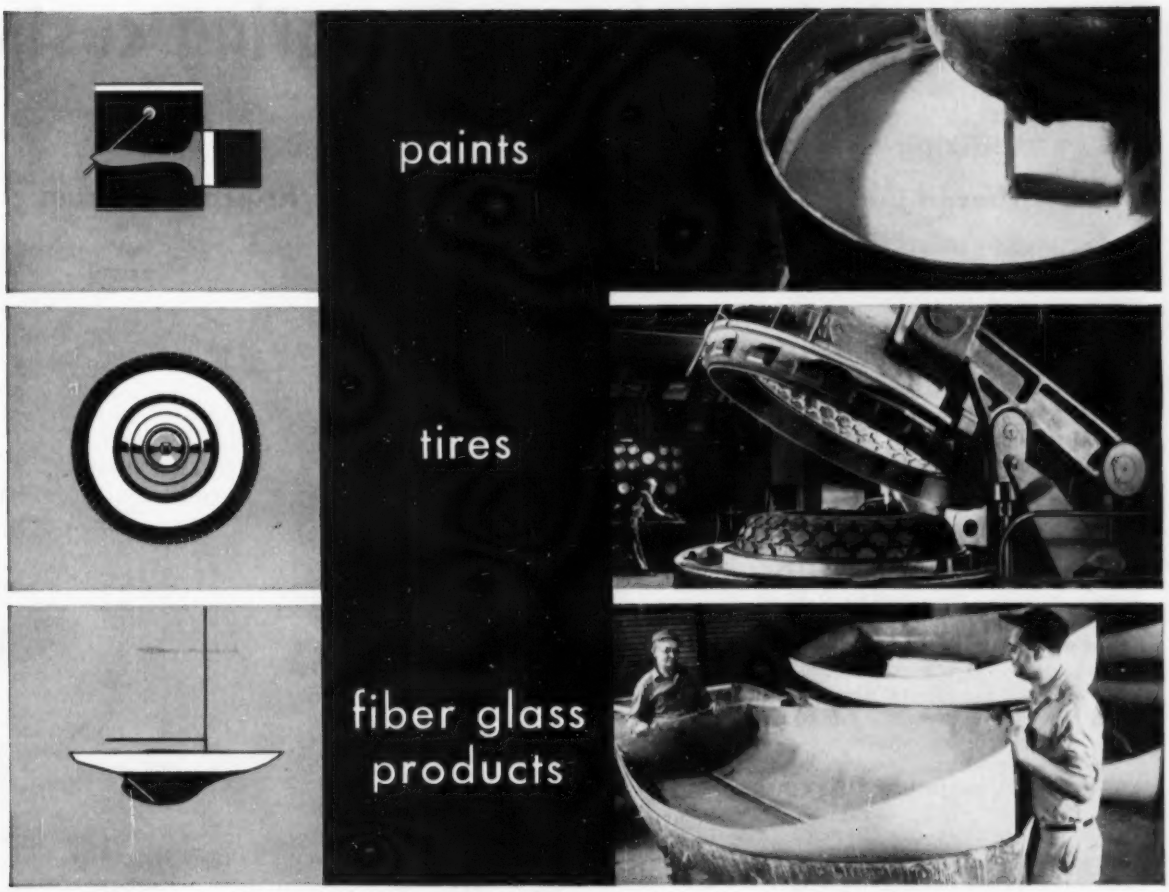

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DOW VINYLTOLUENE

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Utilizing exhaust-heat-recovery boiler, G-E unit can attain 70% thermal efficiency, provide up to 120,000 lbs/hr process steam

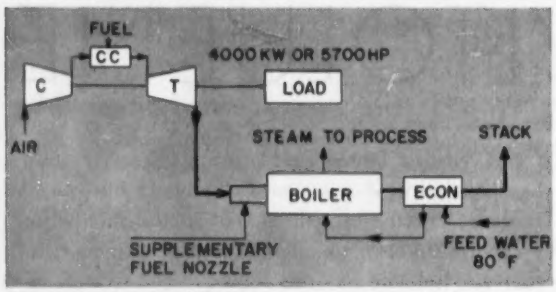
Improved heat balance, elimination of separate boiler facilities, and a steam supply of up to 120,000 pounds per hour—with supplementary fuel firing—make the General Electric combustion gas turbine an efficient, economical prime mover for plants requiring considerable amounts of steam for process or other plant uses. Even without supplementary fuel firing, 40,000 pounds of steam per hour can be generated.

Well suited for either 4000 kw generator or 5700 hp mechanical drive for blowers and compressors, the G-E turbine offers these advantages:

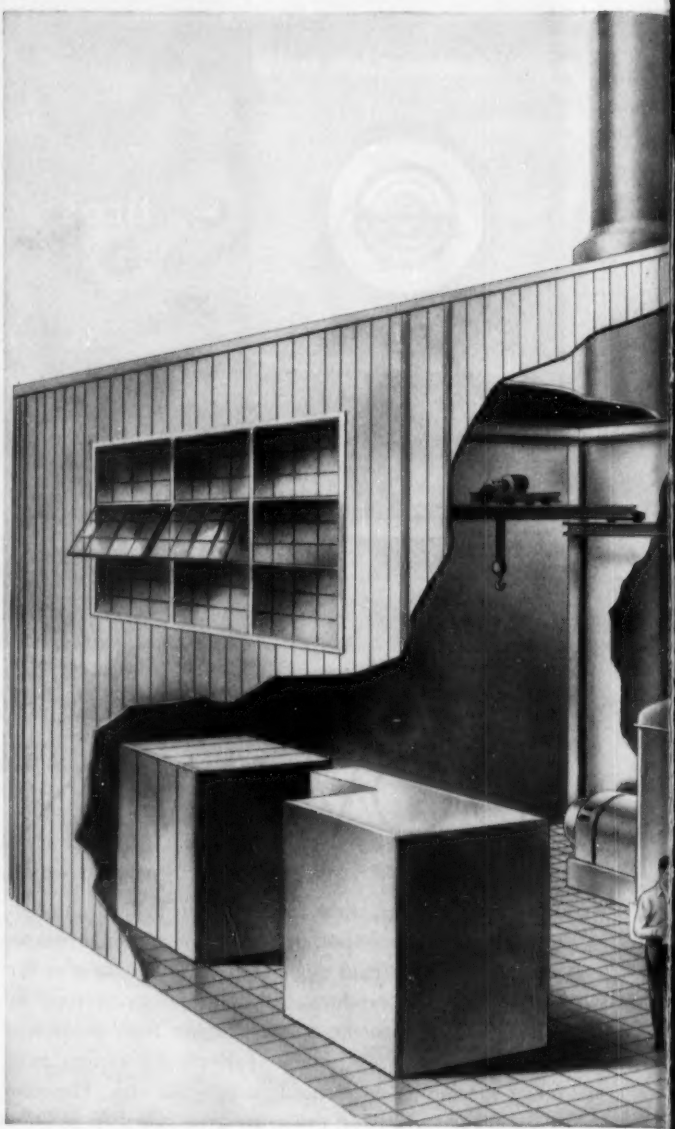
Proven in actual service, over 130,000 operating hours—equivalent to more than 15 years—have been accumulated by G-E gas turbines in industry.
Simple building construction is possible because the unit is small in size and weight.
Lower operating costs resulting from:

- high power plant efficiency with exhaust heat utilized to supply plant steam and heat.
- reduced maintenance due to inherent simplicity of this rotating equipment.
- fewer personnel required to operate small, compact gas turbine power plant.

G-E gas turbines climax more than 45 years of successful turbine building. Contact your G-E Apparatus Sales representative and discuss the applications of a combustion gas turbine in your plant. Or, write for technical article GER-754, "Where Industry Can Use the Gas Turbine," General Electric Co., Section 662-45, Schenectady 5, New York.



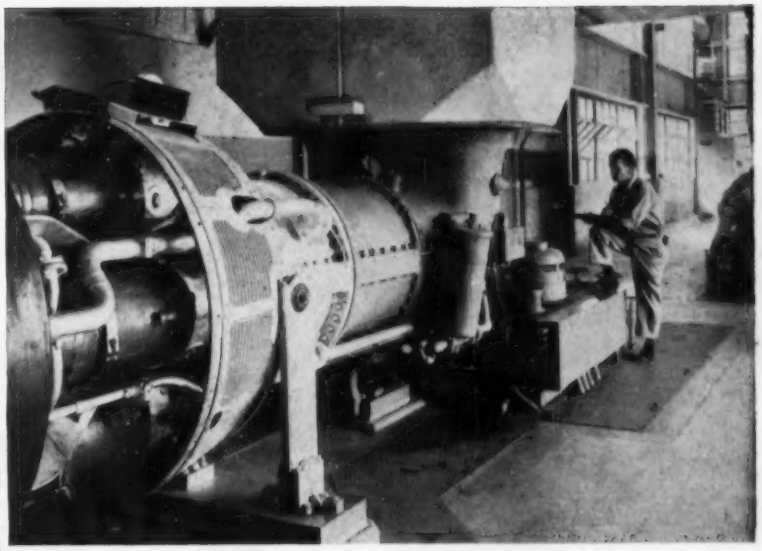
UP TO 120,000 LBS/HR process steam is available from the General Electric gas turbine power plant using a supplementary fired exhaust-heat-recovery boiler. Even without supplementary fuel firing, 40,000 lbs/hr is generated.

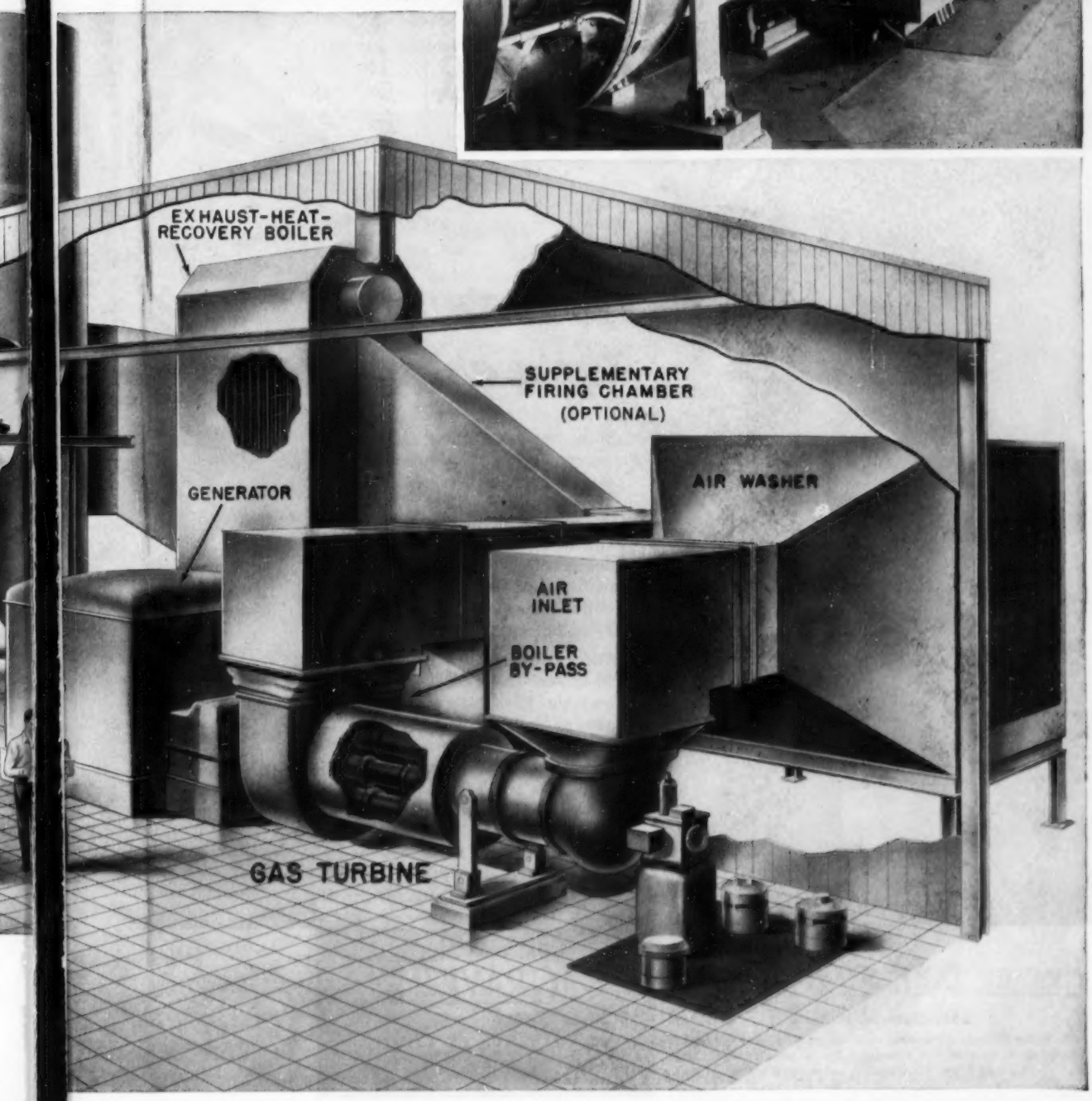


GENERAL ELECTRIC

OVER 30,000 HOURS OF ACTUAL OPERATION have been accumulated on this G-E combustion gas turbine since its installation at the Oklahoma Gas and Electric Company. Exhaust-heat-recovery system preheats boiler feed water for power plant use.

EFFICIENT AND ECONOMICAL gas turbine power plant generates 4000 kw of electric power at .8 power factor. Gas turbine is also well suited for mechanical-drive applications up to 5700 hp.





to date ... there are 30!

Here you see a giant absorber tower of special alloy—just one of Graver's expert fabrications at Tuscola, Illinois. Already there are more than 30 Graver-built structures, including both vessels and tankage, that operate as part of this great, new multi-million dollar installation of National Petro-Chemicals Corporation.

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GRAVER

Process Vessels

NEWSLETTER

The U. S. Army Corps of Engineers wants to lease its 220 tons/day chlorine-caustic plant at Muscle Shoals, Ala., and reserve part of its output; but Diamond Alkali, among others, thinks it's a poor idea. In a statement submitted last week to the Dept. of Defense and pertinent Congressional committees, Diamond outlines why it thinks so:

The Army won't guarantee to take any specified amount of chlorine and caustic for the adjacent classified project, but it insists that the project's requirements be supplied. Any lessee, then, would not be able to accept sales contracts for a definite quantity of chlorine and caustic. If the government took more, the lessee would have to renege on its contracts; if it took less, he'd have to dispose of the surplus on the undependable "spot" market. No chlorine user, in any case, would choose to tie himself to such an unsure supply.

Further, Diamond argues, the government should sell the plant outright rather than lease it. There is no incentive for a private operator to expand or improve a leased plant, nor to build units to manufacture other products based on chlorine or caustic. Besides, the government would still be saddled with interest charges on its investment and be deprived of profits taxes on the incremental sales from a privately owned plant. The state of Alabama and local governmental bodies, too, would be deprived of taxes.

Diamond advances further arguments, but its clincher is the contention that the government has no more business owning 2% of the nation's chlorine capacity than it would have owning 2% of the capacity for any other standard basic material—like copper, iron or crude oil.

•

A new labor union manifesto with an old theme—"in union there is strength"—has been proclaimed for all unions in oil, chemical and allied industries; but both the AFL and the CIO chemical unions are snubbing the invitation for a multiple merger.

The call for unifying the labor groups in those fields was sounded by Maynard M. Sands, president of the Central States Petroleum Union and secretary of the oil union coalition that was started in 1951. He's urging interested unions to send delegates to a founding convention in Philadelphia on Feb. 15.

What happens at that meeting will be of immediate concern to all producers of petrochemicals, but apparently there'll be no sudden change in the lineup of strictly chemical unions.

•

And in the thorny industry issue of craft vs industrial unions (CW, Oct. 17, '53), the National Labor Relations Board will now have a member experienced in the field. Third, and latest Eisenhower appointee to the board, subject to Senate confirmation, is Albert C. Beeson, who since 1947 has been Industrial Relations Director of the Food Machinery & Chemical Corp., San Jose, Calif.

Previous to this, Beeson served in a like capacity with National Union Radio Corp., Newark, N. J., and earlier he was an economist for U. S. Rubber. His appointment brings the NLRB to full strength, after having been short one member for almost a year.

Signed, sealed and delivered by General Services Administration, the deed to the ex-GSA alumina-from-clay plant at Salem, Ore., is now in the hands of Harvey Machine Co. (CW, Jan. 2). Harvey made a down payment of $69,500, signed a mortgage of $260,000. Already in the plant, the company can now get up steam in the project, which is to win alumina from domestic clay.

Still to be settled is the site for an aluminum reduction plant.

•

On and on drags the litigation over General Aniline & Film Interhandel, the Swiss holding company that owns 90% of GAF stock, last week filed an appeal from the recent dismissal (CW Newsletter, Nov. 28, '53) of its lawsuit against the Office of Alien Property for the return of its controlling equity.

Said John Wilson, Interhandel's attorney: "This appeal is the latest step in our long legal struggle to protect the rights of Interhandel, the overwhelming majority of whose stockholders, are Swiss, American, British, French, Belgian and Dutch citizens."

•

When the scramble for the consumer's dollar becomes more spirited, the foundations under price-fixing are shaken. Last week, joining the irreconcilable Schwegmann Bros. (CW Newsletter, Nov. 7, '53) as a target of "fair trade" upholders, Pringle Drug Co., Santa Ana, Calif., was permanently enjoined by the superior court of California from selling Colgate products below the manufacturer's established prices.

•

Another legal hassle now before the U. S. Supreme Court is the Texas gas gathering tax, a levy of 9/20 of 1¢ per 1,000 cu. ft. that brings in some $1 million a month. The plaintiffs—gas pipeline firms—contend that the tax is an unconstitutional burden on interstate commerce. The Texas supreme court upheld the tax, and the plaintiffs are asking the U. S. Supreme Court to set that verdict aside.

•

It's not unusual for petroleum companies to plunge into chemicals, but when it's the other way around, that's news. Texas Gulf Sulphur has bought 30 producing oil wells near Beaumont, where it now mines sulfur. More than that—it's seeking to buy additional wells.

•

Both Dow and Du Pont are readying weed-killers for use in or near cotton area. Both have been tested by the U. S. Dept. of Agriculture and state experiment stations and both will be available only in limited amounts this year. But that's where the coincidences end. Dow's material is trichlorophenoxypropionic acid, used in liquid formulations as amine salts and esters; Du Pont's bid is 3-(3,4-dichlorophenyl)-1,1-dimethylurea, applied as a liquid suspension. Dow calls its product "Silvex"; Du Pont used the trade name "Karmex."

•

You can expect to hear more soon—perhaps within a month—about a smudge-proof "carbonless" carbon paper: looks like ordinary paper, gives a blue "carbon" copy under pressure. A chemical firm has developed it.

•

Jesse Ritchie, publicity-conscious promoter of battery additive ADX-2, has been endorsed by local party leaders as Republican candidate for Congress in California's 8th district.

. . . The Editors

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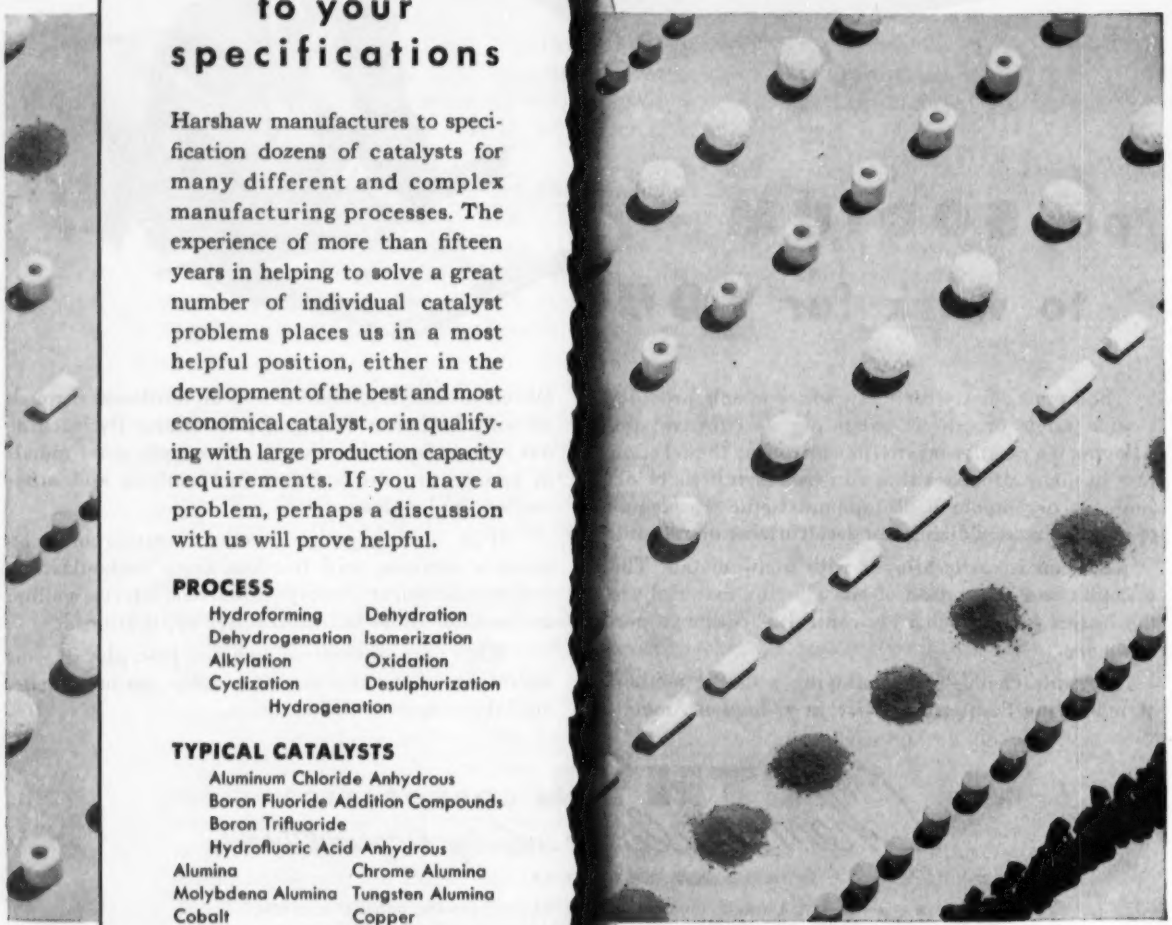

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January 16, 1954 • Volume 74 • Number 3

Chemical Week

BUSINESS & INDUSTRY . . .

THE PRESIDENT: For industry, he asks antirecession measures—faster write-offs on depreciation, research; U.S.-backed loans. At desk (left), Vice-Pres. Nixon, Speaker Martin; in audience, members of Supreme Court, Cabinet, Congress.

Restrained Relief on Taxes

Chemical companies stand to fare slightly better than many other firms if the 83rd Congress adopts the program now being put forward by President Eisenhower.

If his suggestions find favor on Capitol Hill, manufacturing concerns will still face the Korea-induced 52% corporate income tax levy and present excise tax rates, but they'll get a better break on depreciation allowances and on research expenditure charge-offs. Both of those items can mean a lot to chemical process companies.

Actually, there's hardly a phase of the chemical business that isn't touched by the White House proposals now being studied by Congress. Changes are suggested in labor relations, social security, unemployment insurance, health legislation, reduced military spending and curtailed military manpower demands, farm legislation, renegotiation of government contracts, water and minerals policy, and housing.

Eisenhower has pledged every resource of his administration to avert an economic slump. Already his top economic aides have a variety of business stimulants ready to use. But the proposal rating highest on their list is the one to liberalize present write-off allowances on new plants and equipment—permit business to write off two-thirds of the cost of capital investment—machinery and buildings—during the first half of its useful life. This gives the businessman only a small advantage over the 50% write-off regulation he is under today, but Presidential advisors feel that a small assist is all that the economy needs right now, that adoption of this plan would be a foot in the door to further liberalization if and when the Administration sees need for it later on.

Boost for Research: The other suggested tax change of particular interest to chemical men is Eisenhower's bid for more generous tax treatment on research and development costs. Indications point to legislation that would give companies greater freedom in classifying such expenditures.

At present, the Internal Revenue Service permits "blind" research—random explorations that may or may not turn up useful ideas—to be charged off 100% as a current expense. Specific research on a project the company feels is or will be a capital asset is considered a capital investment, and can be only partly deducted from taxable income. IRS now decides into which category any given research project falls; under the President's plan, companies would do the classifying themselves.

These tax-relief proposals are being used by the Administration as an argument for keeping the normal tax rate on corporate income at 52%. As things now stand, this rate will drop back to its pre-Korea level of 47% on April 1. Eisenhower counts out such a reduction until the budget is more nearly in balance.

President's Program for Industry

INCENTIVE TO EXPANSION—Faster tax write-offs for all capital investments.

CORPORATE TAXES—Maintain tax rate at 52%.

EXCISE TAXES—Keep up the rates scheduled to drop April 1.

INCENTIVE TO RESEARCH—Better tax break for expenditures now treated as investment.

ST. LAWRENCE SEAWAY—Bill should be passed.

RENEGOTIATION OF GOVERNMENT CONTRACTS — Revival and extension of law is necessary.

NATIONAL DEBT—Ceiling will have to be increased.

WATER AND MINERALS POLICY—Special messages will be sent to Congress later.

Trust-Busting Boomerang

If the New Dealers' motive in riddling E. I. du Pont de Nemours & Co. with antitrust suits was to crucify the chemical giant in public opinion—as many non-New Dealers have charged—it appears this week that the move didn't "pan out." Du Pont's popularity seems to be at an all-time peak, judging from the editorial applause from big, medium and little newspapers across the country that greeted the company's recent victory in the cellophane suit at Wilmington (*CW Newsletter, Dec. 19, '53*).

But if the New Dealers filed those suits to test the 63-year-old Sherman antitrust law's applicability to big-business ramifications resulting from modern technology, then their program seems to have succeeded in setting up for American industry road signs that are more distinct and explicit than ever.

Of the score of actions in which Du Pont was named as a defendant during the Roosevelt-Truman regime, one of which is still pending, the corporation has been handed just one major corrective order. That was in the "I.C.I. suit," in which Du Pont and Imperial Chemical Industries, Ltd., were ordered to break up their jointly owned subsidiaries in Canada and South America. (Segregation of those properties is approaching completion; the segregation plan advanced by the companies has been approved by the court, but certain steps are being held up pending approval by the U. S. Securities & Exchange Commission [*CW Newsletter, Jan. 2*] and the Argentine government.)

Patent Rights Upheld: For all companies that hope to realize and retain profits on their scientific discoveries, the outstanding point in the decision of Federal Judge Paul Leahy in the cellophane case was that the patent law means what it says.

"The government," Judge Leahy declared, "is in the position of granting to Du Pont a monopoly to promote the progress of science and useful arts, and then charging Du Pont with violations of law because it has been successful in doing what the laws of the U.S. invited and empowered it to do.

"Powers which are granted under a valid patent are not powers on which (the government) may rely to establish (a charge of) monopolization. The holder of a patent is, in accordance with the patent laws, permitted to exert monopoly control over what he has invented." In short, Leahy stressed, he was refusing to hold that the Sherman Act repealed provisions of the patent law.

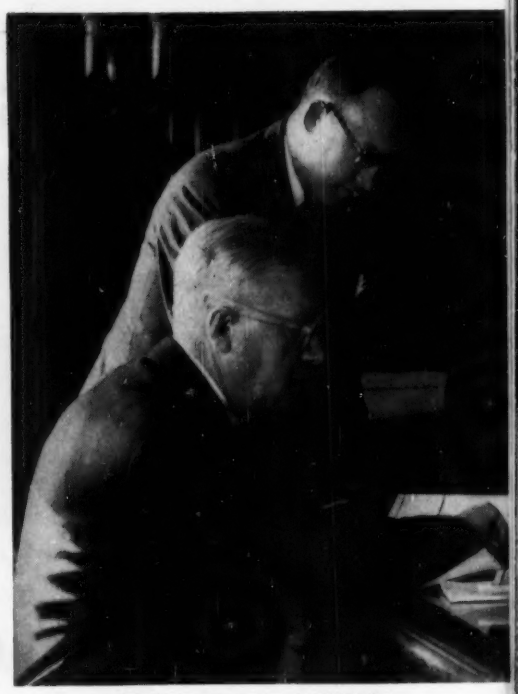
Competition Defined: Another of Judge Leahy's findings that will be of comfort to chemical companies is that competition can exist among various kinds of products if they serve the same purpose.

One of the government's bases for hurling the "monopoly" charge was that only one other company was making cellophane, and that Du Pont controlled the field by virtue of its power to grant or deny a license to produce cellophane under the Du Pont patent. But Leahy found that plain and moistureproof cellophane "are each flexible packaging materials which are functionally interchangeable with others and sold at same time to same customers for same purpose at competitive prices; there's no cellophane market distinct and separate from the market for flexible packaging materials."

Punitive Costs: One way in which the fusillade of antitrust suits did hurt Du Pont was financially. Some of the lawsuits dragged on for years, more or less concurrently, and the expenses involved in defending the corporation in long, involved trials against some of the government's sharpest and most zealous trust busters might well have crippled a smaller concern.

Even for mighty Du Pont, the costs were painful. There were not only staggering direct outlays to pay the fees of some of the nation's top corporation lawyers, but Du Pont also suffered because—in the company's own words—the suits took up a great deal of time of company executives.

However, in the long run, Du Pont's policy of "resisting the Dept. of Justice to the fullest extent" in these cases might turn out to have been the most economical course. If the company had pleaded "nolo contendere" or put up only token resistance, it might have had to pay hefty fines in these past cases and might also have established itself as a favorite victim for all future antitrust lawyers. From now on, you can bet that no attorney general is going to "pick on" Du Pont unless he's sure that he has a strong case. And another thing that future administrations might bear in mind: a company's tax payments will dwindle if that company has to bear heavy litigation expenses.



HEART OF THE VENTURE:

Twentieth

W. R. Grace & Co., the giant international investment, trading and shipping firm, seems to have set its sights with traditional thoroughness on an invasion of the chemical industry. Chemicals and fertilizers now represent about 47% of domestic gross assets; in the past four years, more than $45 million has been invested in chemical enterprises, split between acquisition and actual plant construction. Best guess: before the current year ends, Grace will be firmly ensconced among the 10 largest chemical companies in the United States.

Germ of the idea of getting into the chemical business, company officials say, actually took root roughly five years ago. Steeped in the lore that "in every generation of Grace leadership there's been an injection of fresh enterprise," management carefully sifted through various projects in the chemical field looking for a suitable opening to most "neatly utilize" Grace's unique industrial experience. Heading the investigation: the development section of Grace's industrial department, led by Elwyn E. (Gene) Winne. Reason for the emphasis on chemical potential: a company conviction that chemicals offered "the greatest challenge to management, greatest growth potential, applied (with greatest return) the fruits

Vice-Presidents Lulek and Winne, Pres. Gage, Vice-Pres. Haude, Comptroller King and Asst.-to-Pres. Dugan chart future.

Century Objective

of original scientific research, bridged the gap (with greatest ease) between research and practical application."

First indication as to what direction the company might move to break into chemicals came in June '51 in the form of a petrochemical report to Peter Grace himself. Therein seven recommendations were made, included construction of an ammonia-urea plant "of adequate size to take an important position in U.S. fertilizer production." For six months deliberations followed; not until Dec. '51 could management convince itself that ammonia-urea would be its "best, most advantageous" springboard.

Level-Headed Planning: Once sold on ammonia, management proceeded to rescrutinize the project in detail, decided that a two-pronged attack would offer distinct advantages from any angle—production, sales, or research. By April '52 the die was cast. Events followed with Grace-like precision:

• Starting in Dec. '50, Grace proceeded to pick up stock in Davison Chemical Co.—an erstwhile competitor. Today's packet (at a cost of $18 million in cash and $2 million in stock) totals over 64% interest in common stock outstanding, 19% in preferred. Consistent reports state that the ante, before many more months, will be considerably hiked, possibly the $56-million-a-year producer of superphosphates, mixed fertilizers, and synthetic cracking catalysts will be made a closer member of the Grace family. Regardless of future corporate manipulations, however, the natural outlet offered for ammonia through control of Davison is sure to prove a valuable asset to vertical integration.

One immediate asset: benefit of Davison's research-development Department in terms of assistance to Grace Chemical's Memphis plant project—currently understaffed.

• By April '51, all the pieces in the ammonia-urea project had been fitted into place. The plant site had been selected ("we didn't know at first where we wanted it," recollects John B. Harris—then a member of the president's staff). The desirability of a Gulf Coast spot (natural gas and shipping advantages) had been weighed against a position further up the Mississippi (better marketing potential). Memphis was picked as a compromise only after an exhaustive series of financial and economic studies. Proposals from contractors were duly solicited, consultants "rich in fertilizer know-how" were retained.

Principal delays in initial stages of engineering were caused by long give-and-take discussions over equipment design. "Procurement gummed up the schedule some"; license agreements took the better part of a year.* "But whenever we ran into deep water," says Winne, "we mobilized know-how from all over the organization."

Building up a staff to handle the growing plant was a major task. Since no one really knew how big Grace's eventual chemical investment was to be, company personnel officials started hiring at "in-between levels." Young chemical engineers with sales experience were especially desirable, helped in market surveys, general staff work. "It probably wasn't the best way," admits Harris, "but because we didn't know at first whether there was to be a chemical company or not, we couldn't afford to do anything but allow ourselves to grow organically."

But by Nov. '52, everybody agreed that it was time to get a chemical man at the helm; William P. Gage, former vice-president of Shell Chemical Corp., was brought into the Grace project. Five months later, organizational lines had been straightened out; Grace Chemical Co. was formed in Delaware.

Proof of how successful the maiden plunge into chemical production will be comes this fall when the Memphis

* Grace licenses its ammonia process from Forster-Wheeler Corp.; obtained its synthesis gas process from Texaco Development Corp.

plant comes onstream. Expected production: 250 tons ammonia, 150 tons urea daily. Company officials say 60% of ammonia sales (160 tons daily) are slated to three main fertilizer producers. "It's our intent to spread out urea sales as far as possible."

• Further stretching out its chemical tentacles, Grace last year traded $2.4 million worth of stock for all of the assets of the Thurston Chemical Co., (Joplin, Mo.)—manufacturer and distributor of superphosphates and mixed fertilizers.

• Rounding out the chemical picture—the 50-year-old Naco Fertilizer Co. (Charleston, S. C.)—which mixes fertilizers and insecticides in six plants in the Southeast.

By this week, Grace Chemical management still had made no move in the direction of consolidating all its various fertilizer interests, but indications point to a move in that direction before long. Naco, at present, is operated on a decentralized basis by Thurston out of Joplin; Memphis is handled from New York. With management lines straightened out, sales figures continually on the rise, it shouldn't be long before Grace products play an even more prominent role on the U.S. chemical stage.

COMPANIES . . .

National Carbon Co. will build a $400,000 employee service building at its Niagara Falls plant, due for completion within six months.

•

Shell Chemical Corp. has formed a new ammonia division, with headquarters in San Francisco to handle manufacture, distribution and sales for its new Ventura, Calif., plant.

•

Great Lakes Carbon Corp. has finally been granted a permit to mine diatomaceous earth on the Palos Verdes Peninsula in greater Los Angeles. After four hearings at which spokesmen for property groups in the area vigorously protested the permit, the Los Angeles County Board of Supervisors decided in favor of the company. Great Lakes immediately exercised its option on the stock of the Palos Verdes Development Corp., thereby acquiring a 6,800-acre parcel of land that included the 165-acre quarry site. Purchase price: $9 million.

•

Late incorporations include:

• IsoTarp Laboratories, Inc., Winston-Salem, N.C., chemicals and medicinal products, capital stock of $100,000.

• Dixie-Land Specialties Co., Dover, Del., chemicals, capital stock of 10,000 shares, no par value.

EXPANSION . . .

Polyethylene: Allied Chemical & Dye Corp.'s Semet-Solvay Petrochemical Div. has officially christened its new Niagara River Petrochemical plant at Tonawanda, N.Y. Annual production of polyethylene: 20 million lbs. annually.

•

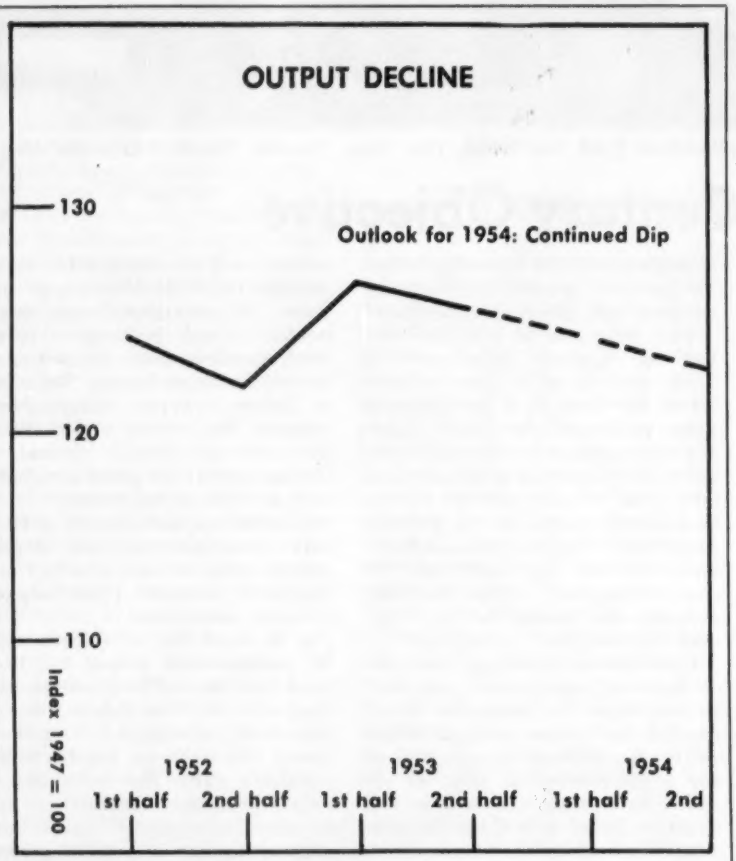
Hydrochloric Acid: International Minerals & Chemical Corp. has started production of hydrochloric acid at Carlsbad, N.M., in connection with its potassium sulfate operations. Prior to the recent expansion, IM&CC discarded magnesium chloride as waste, now processes it to produce hydrochloric acid and magnesium oxide for use by the oil industry in southeastern New Mexico and western Texas.

•

Phosphate Fertilizer: Full-scale production has started at Western Phosphates, Inc.'s Garfield, Utah, phosphate fertilizer plant. Initial production capacity: 92,000 tons of phosphates annually, with further expansion anticipated soon.

•

Xylene: Cosden Petroleum Corp. and Phillips Chemical Co. have placed their new fractional crystallization unit to produce *p*-xylene in operation at Cosden's aromatics plant, Big Spring, Tex. Phillips developed the process, Cosden is supplying xylene and will operate the plant. Initial output: 5 million lbs./year—slated chiefly for oxidation to terephthalic acid—starting material for Dacron.



Showing the Way

OUTPUT in the chemical industry this year will probably taper off somewhat, barring a prolonged strike or national catastrophe. Best guess: a 3-5% drop from 1953's peacetime peak output records. Compared with industry in general (prophesied to slip 10% in 1954), the chemical industry's output is headed for a good year though, may even resurge somewhat by mid-summer

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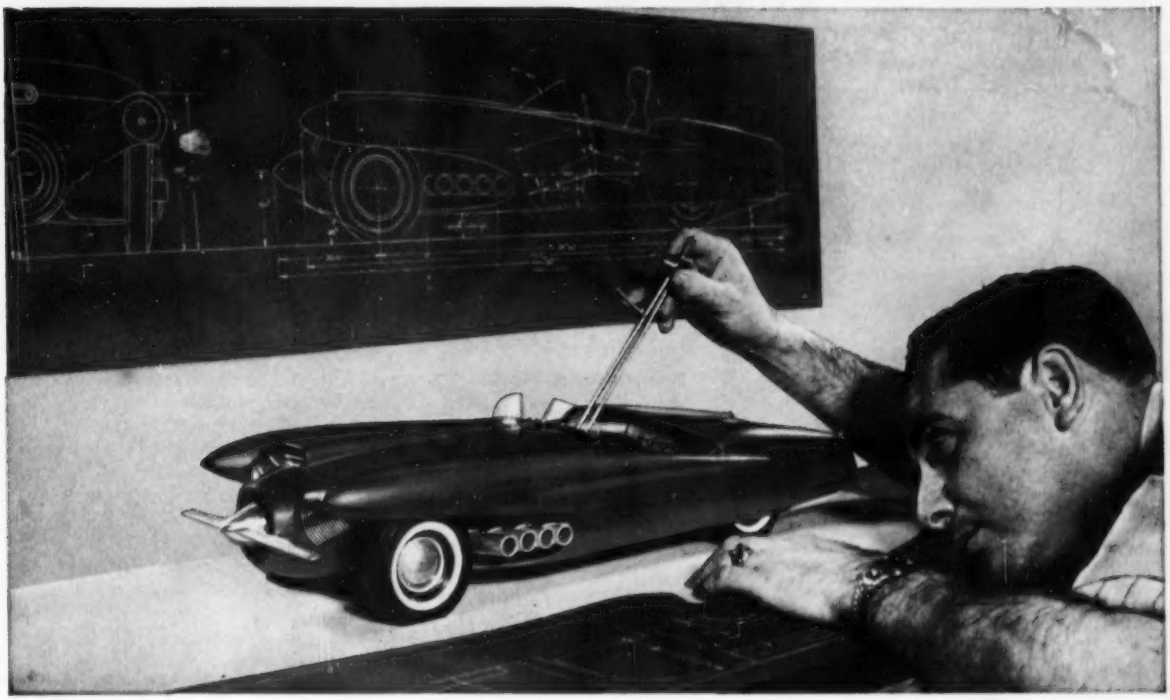

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NORTHWEST'S LODESTONE: On chemical firms, Puget Sound assets exert big pull.

Pile-up in Corner Pocket

With plenty of wood, water and electric power, and with a rapidly rising population, the Puget Sound area has attracted a chemical industry that now boasts one of the region's biggest payrolls.

Propped by the economics of cross-country shipping costs, Puget's chemical community looks forward to brisk sales to the Pacific Northwest's growing market.

If you compare the U.S. map to the playing surface of a pool table, the Puget Sound area in the Pacific Northwest is like a corner pocket in which the balls are piling up rapidly these days. And for certain cogent reasons, more and more chemical production is being cued into the Puget pocket.

For years, the chemical industry in western Washington was growing at the same steady rate as the forest products industry upon which it largely depends.

Now, suddenly, the chemical industry along the Sound has spurted ahead with new plants and plant expansions totaling nearly $200 million —a 35% increase in plant investment. And in 1953, for the first time since World War II, Washington state's payrolls in metals and chemicals exceeded those in forest products.

Oil, Gas A-Coming: The current boomlet may not measure up to those in Texas and certain other regions, but chemical executives in Seattle and environs are happy about the future. They're cheered by economists' belief that the Puget area, which formerly has imported up to more than 75% of the manufactured goods it needs, now can support a fair chunk of consumer chemical industry all its own.

Although a goodly portion of that $200-million expansion is directly related to forest products—particularly pulp and paper—the biggest expansion is in petroleum. Two large oil refineries, first in the area, are on the way.

These refineries—General Petroleum Corp.'s $35-million, 35,000-bbl./day plant under construction at Ferndale and Shell Oil's $75-million, 50,000-bbl. plant at Anacortes (*CW Newsletter, Jan. 9*)—certainly will diversify the area's process industry and may well lead to establishment of petrochemical ventures. Expected to be onstream in 1955, the refineries will provide up to 4,000 jobs. Crude oil will be supplied by a branch of the recently completed $93-million, 718-mile Canadian pipeline from Edmonton to Vancouver. Standard Oil of Calif. and Washington Processing Co. have bought refinery sites near Tacoma, and Phillips Petroleum and Time Oil are among other firms said to be interested in building.

Wood Not Cheap: Of course,

TACOMA TIDEFLATS: Left, Pennsalt in foreground, Kaiser up the road; right, Kaiser up close, Mt. Rainier in background.

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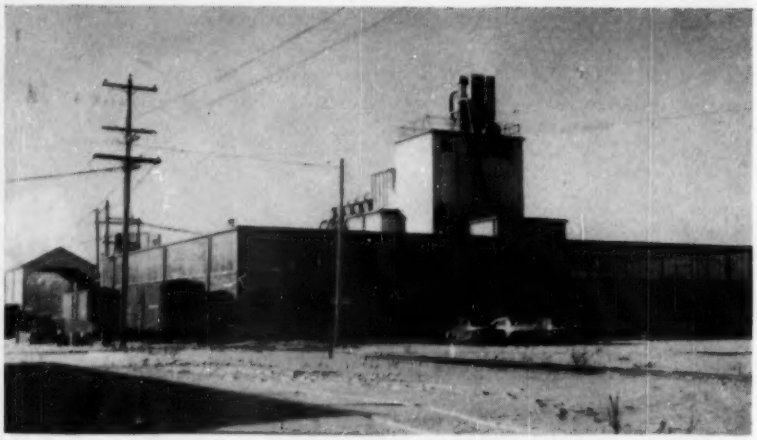


MONSANTO'S ENTRY: For wood products firms, chem plants are big suppliers.

launching of a petrochemical industry of any size must await production of lubricating oils, a field that Shell and General Petroleum apparently have no intention of entering for some time. Production of anhydrous ammonia, methanol and urea at first, polyethylene and vinyls later, are mentioned as strong potentialities for the future.

Further brightening the outlook for the Puget Sound chemical industry are prospects for having natural gas piped into the area—in perhaps two years—from either Canada or the Southwest (depending on outcome of current hearings of the Federal Power Commission) and the growing possibility of utilizing the area's large supplies of sub-bituminous coals.

One of the area's major drawbacks has been its lack of a plentiful, dependable source of cheap industrial fuel. The Northwest's timber now is too valuable for pulp and other wood products to be tossed into the furnace. (The government built a plant at Springfield, Ore., during World War II to make alcohol from wood waste, but found that the so-called waste already was in demand from other quarters.) Natural gas at not more than 30¢/1,000 cu. ft.—a distinct possibility—could largely lick the fuel problem, provide a valuable raw material for anhydrous ammonia, ureas, glycols.

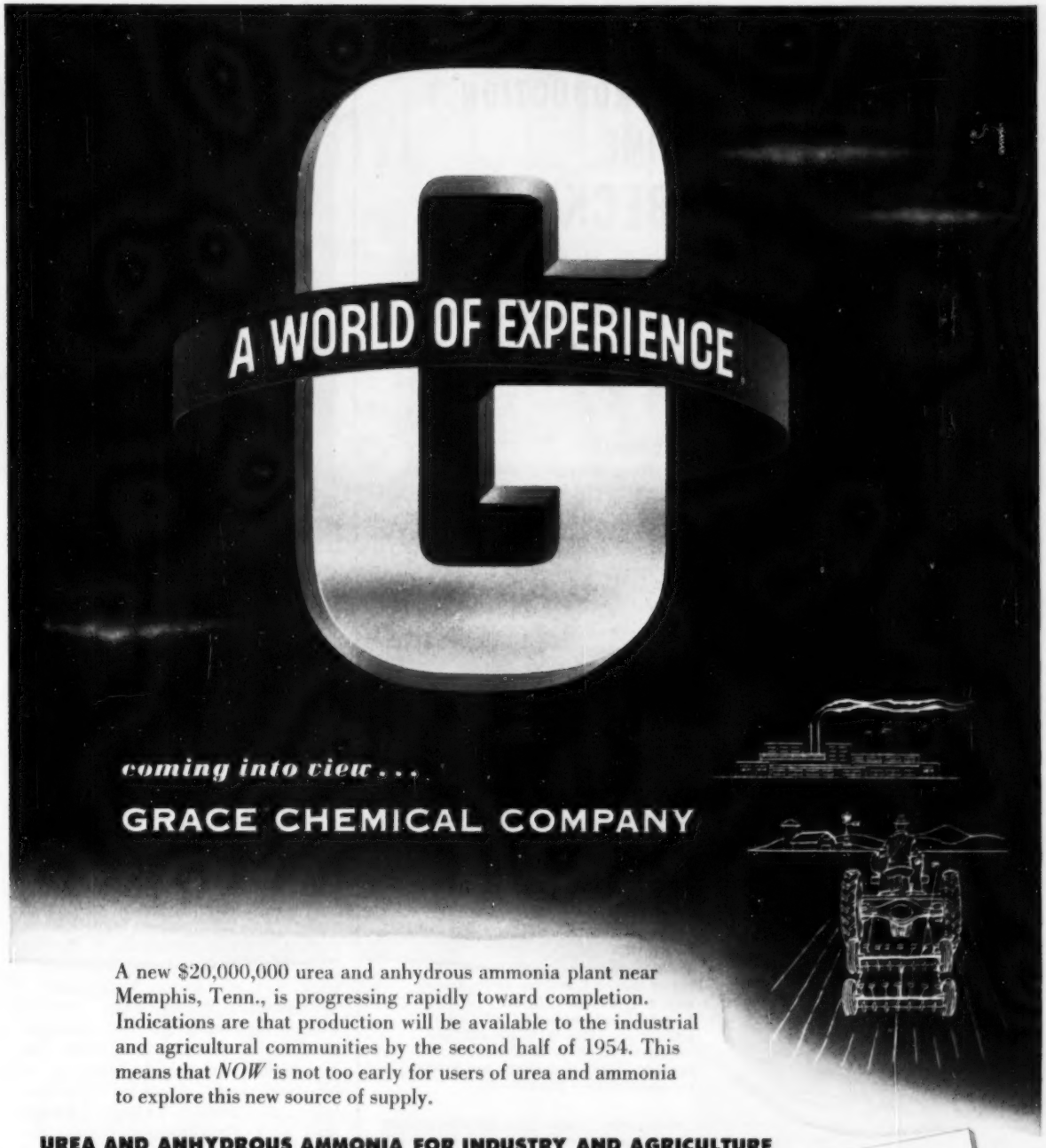
Singular Situation: Geography and climate underpin a unique situation for Puget Sound's chemical companies. High cost of shipping freight across the mountains and plains gives local producers some protection against Eastern manufacturers, but also limits the market area of the Puget Sound companies. Examples:

- The $26/ton freight rate on ammonia enables Hooker Electrochemical at Tacoma—the only local producer, so far — to corral as much of the local market as it can supply (at present, only about one-fourth).
- Increased freight rates, virtually wiping out the advantage of low power rates, have hurt Tacoma Powdered Metals Co.; local interests are buying the firm from Chrysler Corp., seeking new markets for its high-grade powdered iron.
- On the other hand, some firms aren't handcuffed by the freight rates. One such concern is Puget Sound Pulp & Timber, which markets its industrial alcohol as far away as Chicago and Henderson, Nev., at 43¢/gal. despite the 12¢ haulage charge.

Shipping via the Pacific Ocean is another two-edged sword for Puget Sound producers. Seattle is this nation's closest seaport to western Canada, Alaska, and the Orient—big, undeveloped areas with sizable though conjectural market potentialities. But at the same time, ocean-routed foreign products compete—sometimes savagely—with local products. For instance, urea from England hits Seattle at $120/ton, compared with the $140 domestic price.

Popular With People: The Pacific Northwest climate—moderate temperatures, high precipitation—favors agriculture, appeals to people. Since 1940, population of the Puget Sound area—a 150-mile strip along the east side of the Sound from Olympia north to the Canadian border—has risen 41% to 1,200,000, and total population of Washington and Oregon is up by about the same percentage to nearly 4 million. (The population of the U.S. as a whole is up only about 21%.)

One example of how chemical specialty makers can cash in on the area's climate peculiarities: Puget Sound paint makers, allowing for the damp weather and the ocean breezes, put



A new $20,000,000 urea and anhydrous ammonia plant near Memphis, Tenn., is progressing rapidly toward completion. Indications are that production will be available to the industrial and agricultural communities by the second half of 1954. This means that *NOW* is not too early for users of urea and ammonia to explore this new source of supply.

UREA AND ANHYDROUS AMMONIA FOR INDUSTRY AND AGRICULTURE

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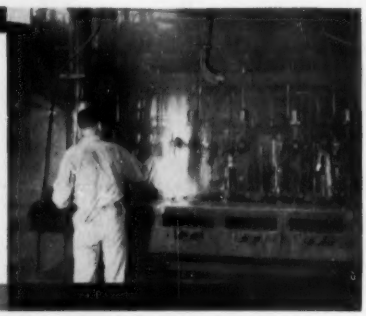

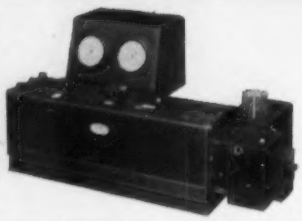

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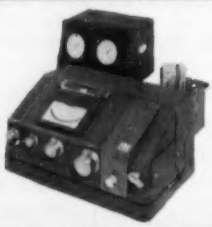

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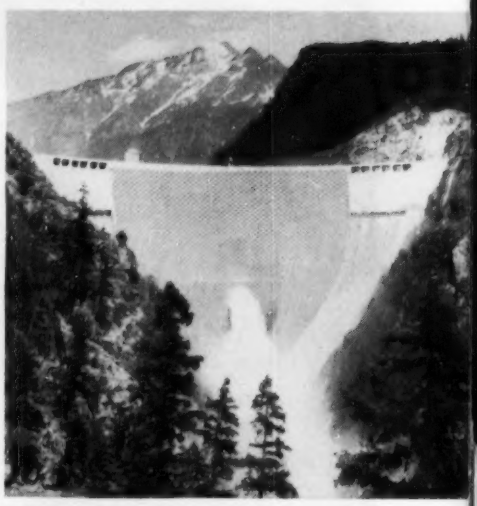

ROSS DAM: For Seattle power customers, the world's fifth highest hydro dam.

more zinc in their paints than is usual in other regions; and they also capitalize on the desire of local residents to paint their houses with unusually bright colors. (Probable reason for bright paint preference: the region's long, sodden, overcast winters.)

Farming is an expanding industry; the local market for anhydrous ammonia for fertilizer is estimated at about 100 tons/day (now being supplied chiefly by Shell Chemical from its California plants), and this will increase as new farms go into production on the million-acre Columbia Basin irrigation project east of the Cascade Mountains. Of all U.S. land that experts say needs to be reclaimed during the next 20 years to supply increasing food requirements, one-fourth is in the Pacific Northwest.

Ammonia's Puget Past: Hooker Electrochemical is the only ammonia producer in the area now, turns out 40 tons/day using hydrogen from its own and nearby Penn Salt's electrolytic cells. Almost the entire output goes to local pulp-mills, which rely on California plants for the rest of their more than 160-ton daily requirements.

But much more ammonia capacity is coming, and this is of historical interest because the first actual chemical plant on Puget Sound was one making ammonia for shipment to the Orient as a refrigerant, in the early 1900's.

Ammonia capacity of Hooker's Tacoma plant will be upped to 60 tons/day as a result of a $5-million expansion program now under way. A well-financed company is reported ready to build within the coming year a plant with daily capacity of 100 tons am-

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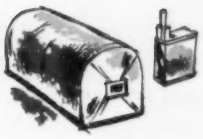
CELLOPHANE		To seal moisture-proof cellophane packages: lacks odor, has strong solvent action, forms a firm bond between cellophane surfaces . . . In printing coated cellophane: to dissolve ink colors.
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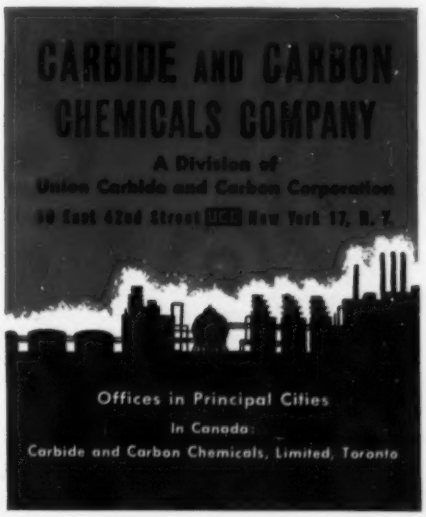
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In view of the area's growing market for fertilizer, Stauffer Chemical chose Tacoma as the site for its small-scale commercial plant producing ammonium phosphate-sulfate by the Rumianca process (*CW, Aug. 9, '52*). This unit was scheduled to go on-stream this week next door to Stauffer's superphosphate plant, and will be expanded to meet demand when the process has proved itself.

Switch to Ammonia: Of the area's 22 pulp mills, five are using ammonia-based pulping processes, consuming a total of 50 tons of ammonia a day. At least as many others use the lime-based sulfite process, and some of these are considering a switch to ammonia to avoid water pollution problems. The state's active Pollution Control Commission is expected to insist ultimately that all pulp mills adopt pollution-free production methods. Net result would be at least a doubling, some experts say a tripling, of the pulpers' present ammonia consumption.

Although the day is past when a new industry can get unlimited supplies of cheap power, the Pacific Northwest is still the major—if not the only—area in which power supplies can be expanded to meet requirements of the electro-process industries. The Federal Power Commission estimates the Northwest has a potential of 30 million kilowatts, of which 10 million can be developed at 3 mills. Only about 4 million kw. have been developed to date, at a rate of a little more than 2 mills (100% load factor); and generating plants with total capacity of another 3.5 million kw. are under construction. Currently, a new plant can get up to 10,000 kw. of firm power; for more power it would have to qualify as a defense industry.

Desirable large industrial tracts are becoming scarce in Seattle and Tacoma. But Seattle is working for a flood control dam that will open up new sites, and a Tacoma dredging operation now under way will provide several hundred more acres of industrial sites. Meanwhile, Olympia, at the south end of the Sound, still can offer sites of up to 2,000 acres at about $200/acre.

Diversification is what Puget Sound's chemical industry desires, but the wood products industry—which provides 40% of the state's manufacturing employment—is still the chemical community's best customer and is likely to continue to hold that role for

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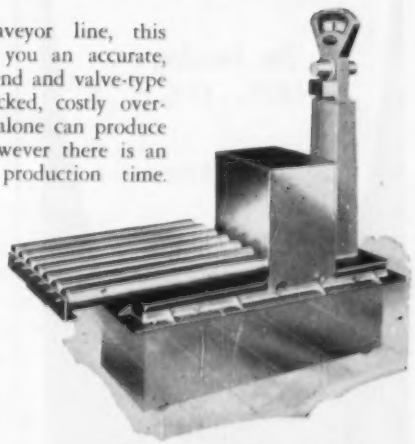

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some time. Nevertheless, the forestry business is on the upswing—the West Coast's plywood industry has doubled its production since World War II, and pulp production is up by 50%—so from all indications, Puget Sound chemical companies are sitting in the middle of a market that's already good-sized and is steadily growing bigger.

LABOR

Labor Confabs: Announced this week are two national meetings—both to be held in Chicago—of importance to personnel managers and industrial relations directors.

• A personnel conference sponsored by the American Management Assn., Feb. 15-17, will take up the guaranteed annual wage, Taft-Hartley revision, and other major issues in labor relations, personnel administration, and human relations. Speakers will include Guy Farmer, new chairman of the National Labor Relations Board.

• Health and safety of industrial workers will be the theme of the 1954 Industrial Health Conference, April 26-30. Discussions of various aspects of the employee health problem will be conducted by the Industrial Medical Assn., American Assn. of Industrial Nurses, American Industrial Hygiene Assn., American Conference of Governmental Industrial Hygienists, and the American Assn. of Industrial Dentists.

Back to Bargaining: There were few chemical labor contract renewals during the holidays, but more negotiating sessions were getting under way this month. Among recent agreements:

• Concern about a possible shortage of containers dwindled with settlement of the one-month strike of the United Steelworkers (CIO) against Continental Can Co. The new contract provides for a 15¢/hour "package deal" for the 14,000 employees affected, and was expected to be the basis for settlement of the strike of another 20,000 Steelworkers against American Can Co.

• Wage increases stipulated in three latest contracts reported by United Gas, Coke & Chemical Workers (CIO) are equal to or more than the average wage increase negotiated by Gas-Coke in the past year. These newest pay boosts are 6¢/hour at Keith-Victor Pharmaceutical, St. Louis; 8¢/hour at American Cyanamid, Joliet, Ill.; and 7% across-the-board at Ultra Chemical Corp., Paterson, N.J. The Keith-Victor pact came after a one-day strike.

Employment Dip: It didn't cut into chemical employment to any great extent, but there was a 400,000 increase in the nation's total of unemployed persons last month, according to the U. S. Dept. of Commerce. The jobless figure stood at 1,850,000 on Jan. 1, compared with 1,425,000 one year earlier.

In at least one state, chemical employees were idled. Alabama's director of industrial relations, in reporting a drop of 3,200 persons in nonfarm employment, says that 1,300 workers were laid off in "soft goods" manufacturing "because of completion of seasonal operations in foods and chemicals."

LEGAL

Slow on Draw: Federal Judge Edward Day in Providence, R.I., has ruled that the government was too late in its attempt to prevent the merger of Wallace & Tiernan, Inc., and Novadel-Agene Corp., both of Belleville, N.J. Day held that the merger actually took place on Dec. 10, as company counsel maintained, and that it would be "futile" for his court to issue a restraining order.

High Court Cases: This week saw new developments in three Supreme Court cases of concern to chemical and petrochemical companies:

• Warning that the high court's present position in the Phillips case "may sound the death knell of the natural gas industry in Texas," Attorney General John Ben Shepperd of that state is petitioning for a rehearing, and Oklahoma and New Mexico have joined in the move. Those three and six other states— Louisiana, Colorado, Mississippi, North Dakota, Wyoming and Kansas—want the court to reverse the present ruling that Federal Power Commission has authority to regulate sales by gas producers.

• In another case, the Texas attorney general is asking the Supreme Court to uphold his state's gas gathering tax and let interstate pipeline business "pay its own way." Oral arguments on this issue are to be held in Washington this month.

• Pennsylvania is opposing New York's request for permission to take 800 million gal./day from the Delaware River, instead of the present 440 million. The Keystone state wants Philadelphia to have first call on water from the Delaware, and also wants New York to guarantee that it will maintain certain minimum runoff in the Trenton-Philadelphia area even during droughts.

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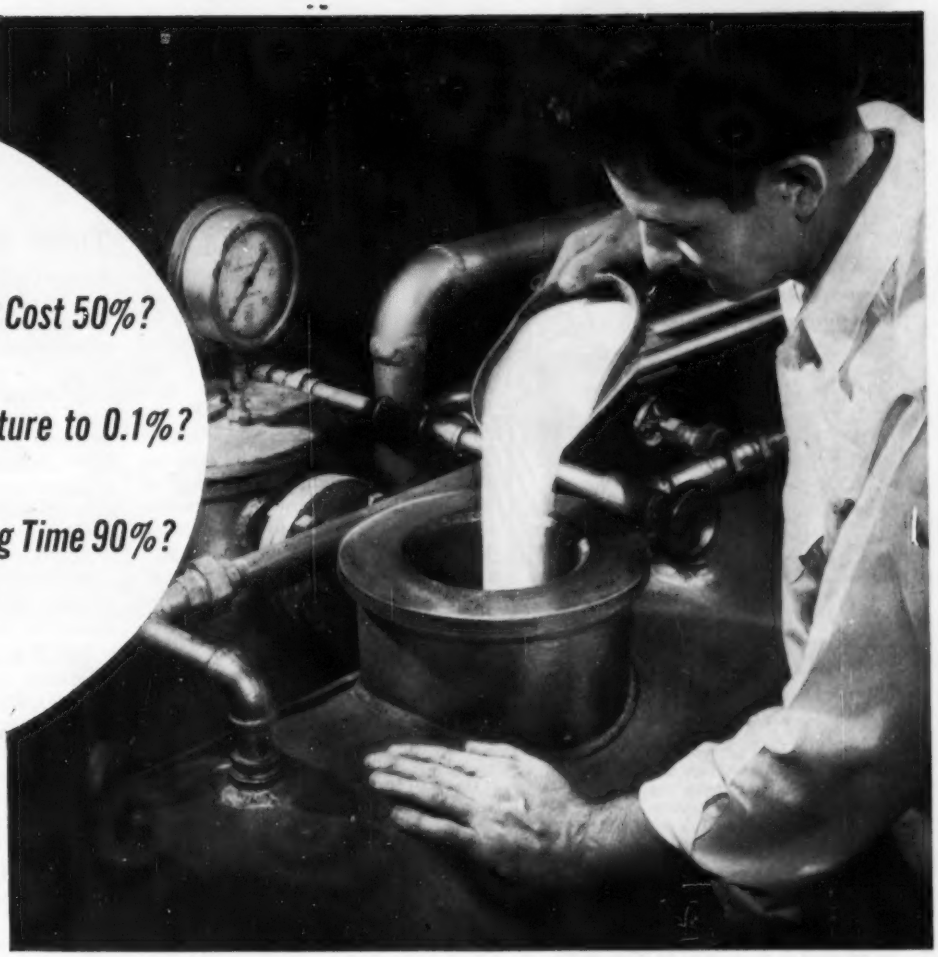

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Enforced Losses: Refusing a permit to operate its refinery without expensive pollution control equipment is equivalent to depriving a company of property, Union Oil Co. charges in a suit against the Los Angeles Air Pollution Control District. Union Oil says its old refinery was within the law, though it emitted about 20 long tons of sulfur compounds into the air each day. Aiming at reducing the amount of contamination even at an estimated $22,000/year loss on the unit, Union continues, it completed in Nov. '52 a $500,000 plant in which total discharge of contaminants was "greatly reduced." But, the complaint goes on, Pollution Control officials refused to grant a license because concentration of sulfur compounds in the emission was found to range between 1.3% and 1.9%, while the rule sets a 0.2% maximum. To meet that standard, Union adds, would require use of a process that would entail an additional $100,000/year loss.

•

Corner Cutting: From London to Louisville this week, there were accusations of substitution, illicit handling and misrepresentation of drugs and cosmetics.

• In Hackensack, N.J., police arrested three men charged with counterfeiting a trademark and with selling goods bearing a false label. The men allegedly had been selling inexpensive perfume as "Chanel No. 5" at $17.50/oz., about 30% under the regular retail price of that brand.

• British drug stores have been selling penicillin tablets that fall short of meeting specifications of the British Pharmacopeia, declares the Birmingham Public Health Dept. Among 82 samples tested, 19—including four that were "virtually devoid of activity"—contained less than 90% of their purported penicillin strength.

• Mann Chemical Corp. (Louisville, Ky.) is filing suit against World Chemical Corp. and Dr. Korony Products, both of the same city, charging unfair and unlawful competition. Mann asserts that the defendant firms have been imitating Mann's drugs, chemicals and pharmaceuticals, most of which are for dentists' use; and that the defendants' agents made "misrepresentations to dealers" about Mann products. World and Korony both denied the charges.

•

Tax Bill Stands: There's no question about the legality of Baltimore county's asking Kaiser Aluminum & Chemical to pay $70,000 in taxes for 1952 and 1953 on the government-owned plant leased by Kaiser at Halethorpe, Md., according to Chief Judge George Bandier of the Appeals Tax Court. He upheld the county assessor's valuations of that plant, $1.9 million in '52 and 1.6 million in '53.

Third in Line Now?

Flushed with success over its rapid ascent in world chemical circles, Italy's pharmaceutical industry claims third place internationally in terms of total production at year's end—trailing only the United States and Switzerland. Total capital investment in pharmaceuticals in Italy by this week totals $150 million; annual output, $120 million; exports, around $15 million.

According to latest Ministry of the Interior reports, a fair number of Italian firms are responsible for the rapid rise in stature. Broken down into product groups, major Italian producers of pharmaceuticals include:

SULFA DRUGS—Principal manufacturers: Farmitalia (a Montecatini protégé), Carlo Erba, Instituto Chemioterapico Italiano, De Angeli. Total annual output of sulfa drugs: 792,000 lbs.; annual consumption: 264,000 lbs. That, as the Italians are quick to point out, leaves a lusty 528,000 lbs./year available for export.

VITAMINS—In vitamin production, the Italian Ministry claims two firsts—largest total production of ascorbic acid and folic acid. All other vitamin requirements are at present supplied by foreign producers, but indications point strongly to expansion in the field before the end of this year.

HORMONES — Principal manufacturing firms in Italy today include the Società Italiana Prodotti Schering, the Società Ormonoterapica, the Vismara Co., and the Negroni Co. The latter two use by-products from their meat-packing activities as raw materials for the production of various hormones, specialize in rheumatic and arthritic medicinals.

CHEMOTHERAPEUTICS—In the case of chemotherapeutic products, Italy has lately made tremendous strides. Special emphasis is still being placed on two products: *p*-amino salicylic acid, and isonicotinic acid. Thanks to production of both, Italian exports have soared, now are valued at well over $1.7 million annually.

SYNTHETIC ANTIBIOTICS—The only synthetic antibiotic currently manufactured in Italy is chloromycetin. Producing it: Farmitalia, Leputit, Carlo Erba, Zambon, and a handful of smaller firms. Present output is estimated at 52,800 lbs./year. Internal requirements are now sated;

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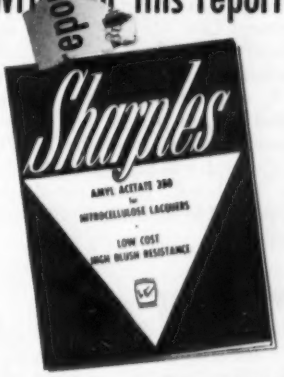

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MOULD ANTIBIOTICS – Up until 1950 Italy relied completely on imports for mould antibiotics, but the picture's entirely reversed now. Some $15 million has been spent in this field alone over the past three years; three main plants have just recently gone into operation. Output of penicillin stands at 2 million units/month (capacity is 4 million units); home consumption is leveling at 1.2 million units. Streptomycin is not far behind it with production at 3,300 lbs./month (output is up to capacity); home consumption is estimated at 1,540 lbs./month.

The total picture adds up to a healthy, vigorous pharmaceutical industry in Italy. And with companies such as Montecatini and Lepetit spearheading the drive on world markets, other international producers may well watch the Italians in the months ahead.

Where There's Smoke

In the first legal test of Columbus, Ohio's municipal smoke control ordinance, that city's Municipal Court Judge John Matthias overruled a motion by the Pennsylvania Railroad to dismiss three charges against it, holding the ordinance valid and constitutional.

The law was prepared in 1949 by the present City Attorney Wylie, and by Harry C. Ballman, chief smoke regulation engineer. Ballman, starting Feb. 1, will get a leave of absence from the city, to permit him to serve as executive secretary of the Air Pollution Control Assn. of the Mellon Institute, Pittsburgh, which coordinates smoke control programs for both cities and industries.

New Lineup

Metal production figures for 1953 show steel still away ahead, with a record 110 million tons of ingot, aluminum second with 1,500,000 tons aggregate, and copper third with about 1,400,000 tons. This marks the first year aluminum has edged copper out of its second place spot.

Primary copper production changed little from 1952's figure of 961,886 tons; the rest, about 450,000 tons, comprised scrap smelted, copper blister and concentrates. Aluminum's primary yield was about 1,250,000 tons, and the balance came from the smelting of so-called captive scrap metal that never reached the market.

Fluoride-in-Water Fracas

There's more than a mild storm brewing in California this week as opponents of fluoridation of municipal water supplies prepare to launch an all-out attack on "mass medication." Seat of the battle: the California State Assembly Committee on Public Health—holding hearings on Assembly Bill 3288 (introduced in Jan. '53) with provisions for making fluoridation of public water supplies by any persons a felony. "If the health food faddists, extreme rightists, and general crackpots win out now," states one knowledgeable proponent of fluoridation, "California's licked." The hubbub's muddied the waters enough now to slow down fluoridation programs in a number of communities practically every word uttered boomerangs into a political football.

Chief witness in San Francisco hearings last week—for the bill and against fluoridation—was Mrs. Hugo Franzen, housewife and head of the Citizen's Committee Against Fluoridation, which put up a strong, spirited but losing fight against fluoridation in San Francisco in 1951. In 70 minutes of unhesitating testimony, Mrs. Franzen in essence, maintained that fluoridation is a Communist plot against the U.S., accuses the U.S. Public Health Service of being infiltrated with Communists, slyly using fluoridation "to take over the nation and make morons of the people."

Says Mrs. Franzen: "The Nazis used fluorides in water to paralyze the Poles . . . Fluoridation permits mass brainwashing, leads to national suicide."

Raging on All Fronts: Further south in San Diego, the fluoridation furor is blazing both in the courts and on the political front. Setting off the blaze: fluoridation of San Diego's municipal water supply (beginning Nov. 10, '52, pursuant to a unanimous vote of the city council calling for use of the additive).

Little opposition was engendered at first, local officials admit. Fluoridation initially was proposed by both San Diego City and County Boards of Health, received blanket endorsement by the county Dental Society, Medical Society, Community Welfare Council, San Diego Congress of Parents and Teachers, Chamber of Commerce, and the AFL Central Labor Council. San Diego's water (containing 0.3-0.5 ppm.) was thereafter to be "officially maintained at a 1.0 ppm. content" at an estimated cost of $16,400/year.

First to challenge the practice was C. Leon de Aryan, publisher of a nationally circulated right wing weekly newspaper, *The Broom*. De Aryan's protest took the form of a suit in Superior Court of San Diego County, named the City of San Diego as defendant, asked for an injunction to halt fluoridation. The charge: it is forced medication and a poisonous substance "likely to cause de Aryan great bodily harm." Acting as his own attorney throughout a series of appeals in Superior Court, Fourth District Court of Appeal, and the California State Supreme Court, de Aryan has encountered continued failure, but by this week has yet to toss in the sponge. His latest tactic: an appeal to the U.S. Supreme Court to issue a writ of certiorari to halt fluoridation.

On a political level, the opponents of fluoridation are even more active. The Citizens Health League (headed by J. K. Christie, a chiropractor) last fall circulated petitions asking for repeal of fluoridation ordinances, has settled on an agreement to put the matter in the hands of the voters on June 8, when state and county primary elections are held. As things stand now, even the most assured pollsters won't guess whether San Diego voters will stand behind fluoridation, but solemnly assert that if it's rejected, fluoridation in all California will be dealt a heavy—and probably fatal—blow.

Taking up the defense of fluoridation this week is the Citizen's Committee for Children's Dental Health. Sponsoring agencies of the Committee include the County Dental Society, Board of Health, Chamber of Commerce, County Tuberculosis and Health Assn., Community Welfare Council and the PTA. Their basic arguments are calm, and unemotional:

Emphasized:

- The American Dental Assn. states categorically that 50% of all children in the United States today have one or more dental cavities. By age 16, the percentage's have risen considerably—more than 90% of all boys and girls have advanced tooth decay, each with an average of seven affected teeth.
- The situation is even more critical in San Diego. A survey made by the community Welfare Council in 1949-50 reveals that 64% of all public school children need immediate dental care.* Estimates made in the survey show that over 45,000 elemen-

* Better than $1 billion is spent annually in the U.S. for dental care.

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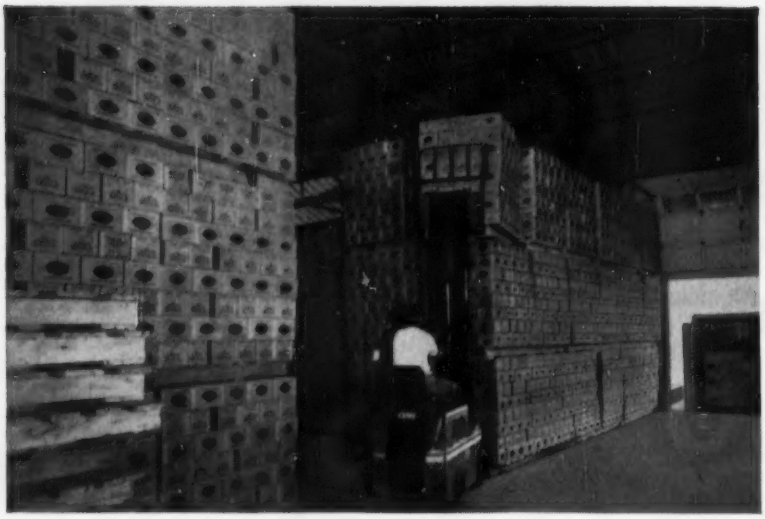
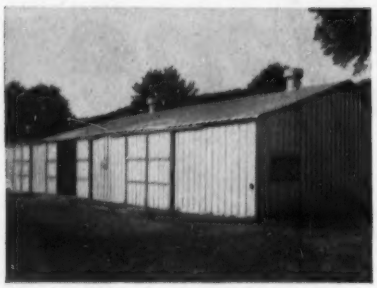
CW-1





Weather-tight, fire-safe—long-lived aluminum sheeting, bolted firmly—keeps supplies and packaging materials safe, dry, in this rigid-frame Butler building.

Clear-interior of this Butler bowstring-truss building gives Norwich Pharmacal Company convenient warehouse space for 40 carloads of pallet-ized bottles.

BUTLER buildings help streamline material handling at Norwich Pharmacal

"The first of our two new warehouses—an aluminum-sheeted, Butler steel building—proved Butler's economy and utility," says William G. Agnew, plant engineer at the Norwich Pharmacal Company, Norwich, N. Y.

"That's why we purchased a second Butler building for bottle storage. Its big, convenient doors and 10,800 feet of post-free floor space let us go to modern material-handling methods. We now have bottles shipped on pallets and use fork-lift trucks. We've cut handling time per carload from 48 man hours to 22.

"$2.40 a square foot—including lighting and erection on our foundation—was all we paid for our new warehouse. Yet we feel that the service of our Butler building will match that of far more expensive types of construction we could have chosen."

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tary school children "are desperately in need of dental services."

• For generations, over 3,000 Americans have lived in communities where the drinking water naturally contains fluorides in amounts as high or higher than the amount currently incorporated in San Diego's water supply. "And there has been no case to our knowledge in those areas where fluoridation has been accused of causing bodily harm."

• In Grand Rapids, Mich., where the water's been fluoridated since 1945, authorities report a 65% decrease in dental decay—and not a single proved case of child or adult being harmed by fluoridation. Detailed studies of vital statistics in Grand Rapids show no increase in the death rate since 1945 because of heart disease or kidney diseases.

• All of the present 786 cities in the United States now fluoridating their water supplies report they're doing it "because it's the safest, cheapest way to reduce dental decay in all children." Eventually, it's calculated the entire continuously decay-resistent city population will benefit to the point where 65% of all tooth decay—at all age levels—can be prevented.

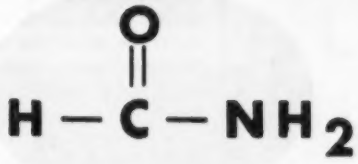
• Cost is no object of consideration. For 6¢ per person per year in the city of San Diego, younger children are spared two-thirds of normal tooth decay. Actually, says the CCDH, the cost of a single filling in a decayed tooth in San Diego today will pay for enough fluorides in the water system to protect one person (and all his teeth) for 50 years.

On the other side of the battle lines, the Organic Health Foundation of America is fueling up things to a fever pitch. In a recent issue of *Health Review* (in an article titled "Pope Pius XII") the foundation interpreted some remarks of the Pope, listing him as "opposed to fluoridation." But by this week the maneuver had backfired. Chagrined officials now prefer "to make no further use of the Pope's opinions, feel they shouldn't have injected religious matters into the controversy."

Making it quite clear that it is not connected with de Aryan, or with his running court cases in any way, the foundation's arguments now follow a pattern something like this:

• "Artificial fluoridation of water supply is dangerous to the public. No one knows today how many people with diseased kidneys or other disorders are having their lifespan shortened by daily incorporation of minute quantities of various toxic agents (including fluorine) supplied in water

AN IDEA-CHEMICAL FROM DU PONT



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Dissolves casein, gelatin, animal glue, glucose, zein, tannin, starch, lignin, polyvinyl alcohol and cellulose acetate.

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with more than one part per million of the element in question."

• "Fluoridation ignores the well-known major cause of tooth decay in children—refined foods. It's both unethical and un-American. It forces everyone to accept mass medication; unlike chlorine (which is added to treat the water) fluorine is added to treat people."

• "Fluoridation is both unnecessary and wasteful. Less than one five-thousandths of the public water supply is consumed by children in the age bracket it's calculated to assist. If passed out on a free basis to the children of every family in the area desirous of using, fluorides would cost the city less than $5/year." Conclusion: "Chemical companies are the ogres behind the fluoridation drive . . . particularly the metal refinement industries that find it difficult to dispose of their by-products by any other procedure.

Virtually ignoring the verbal fireworks, health directors in California are reportedly quietly going ahead with plans to add the equipment necessary to fluoridate the remaining one-third of San Francisco's water supply not now treated. And in the Los Angeles area plans are said to be practically completed, await only the go-ahead flag to get under way.

Elsewhere in the U.S. today there's an equally determined drive to add to the roll call of communities fluoridating water. Some 120 additional communities (including Philadelphia and Cleveland) are now committed; scores of other cities are "debating the question."

In almost every case, American Dental Society points out, the fluoridation question is first raised by decision of city councils or other local governing bodies, with public health department approval, and usually after public hearings. At latest count—after prolonged debate—19 city councils turned thumbs down on the idea. But when the question came to a public vote, the citizens approved it in 20 communities, rejected it in 40. Thirteen of the latter were in California.

"That," one rueful Californian admits, "would seem to indicate that California is really dragging its heels when its progress in fluoridation is measured against other states."

Regardless of which side of the fence observers in other states happen to be on, it's a sure bet that attention in the months ahead will be centered on the outcome of the fluoridation tug-of-war in California.

[redacted]

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If you haven't checked on your packing and shipping recently, do so now when your profits are squeezed between rising costs and lower selling prices. You will find the extra points which Hudson can give you make tangible savings — enough to make the difference.

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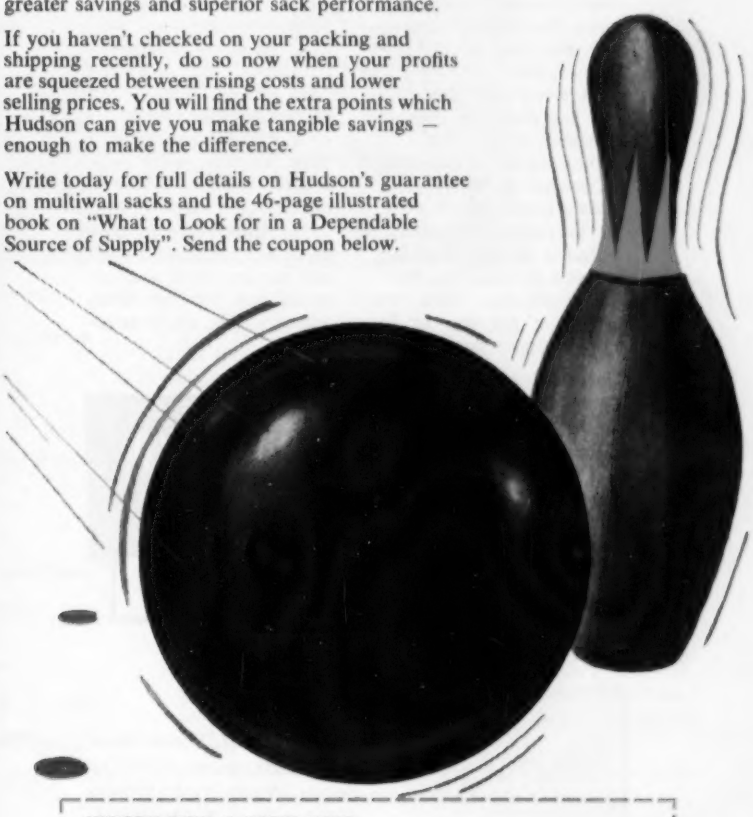

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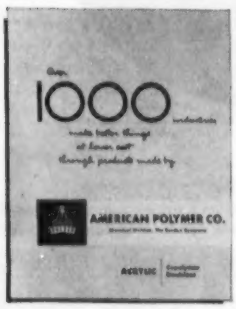

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B & I . . . . . .

FOREIGN. . . . . .

Superphosphates/Japan: The Tokyo Boeki Shokai K K has contracted with the Export-Import Corp. of China to supply 11,000 tons of superphosphates from Japan in return for cashmere. Supplying the superphosphates: Nihon Industrial Co., Kamishima Chemical Industries. Value: £150,000.

•

Polyethylene/Canada: Canadian Industries Ltd. plans to increase its polyethylene capacity at Edmonton. Cost: $1 million. Though it's been estimated that original capacity is in the vicinity of 22 million lbs./year, CIL says the new expansion will bring production up to 16 million lbs. annually.

•

Tannin/Great Britain: In a drive to wipe out the so-called sulfur-reducing bacteria that cause about $14 million damage in corrosion of water pipes in Great Britain each year, the government research laboratories at Teddington are working with tannin—obtained from the hard and acrid wood of mangrove swamps. Tannin, in concentrations as low as 0.01%, arrests such corrosion.

•

Chemical Industry/Turkey: What may prove to be the foundations of a manufacturing chemical industry in Turkey is today shaping up in Adana. First unit in: a superphosphate plant; next in line: a nitrogen plant at Kutahya. Contemplated in the near future: a sulfuric acid industry at Murgal, including nitric acid facilities to turn out 6,000 tons of nitric acid annually.

•

Synthetic Rubber/Germany: Huels Chemical Works plans to produce upwards of 30,000 tons of synthetic rubber annually, using as its raw material (curiously enough) 500,000 hectolitres of 100% alcohol obtained from French red wine. Production permission's necessary from the Allied High Commissioner's Office; lower prices on wine must be obtained from French wine-makers.

•

Chemical Exports/Switzerland: Swiss exports of chemicals are scaling upwards again. Compared with the first eleven months of 1952, exports have jumped over 15% (621.3 as against 538.9 million francs). Particularly heavy increases were registered by pharmaceutical products, aniline dyes and indigo.

•

Potash/Spain: Japan's Ministry of International Trade has agreed tenta-

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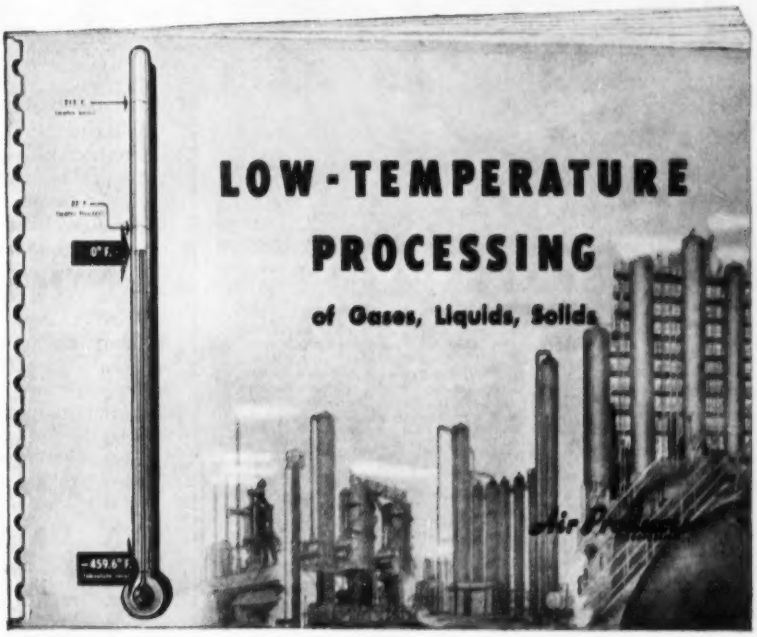

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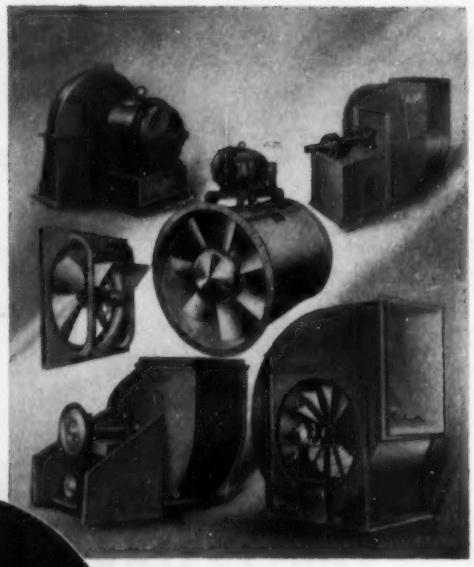

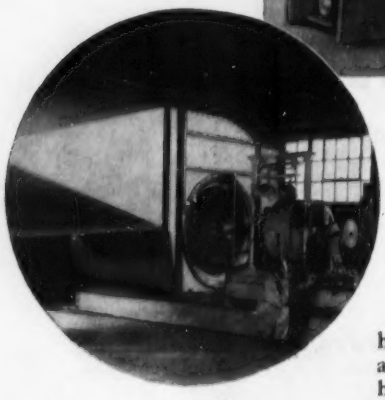

In the "Buffalo" Test Room, engineers put fans thru every conceivable performance test. Continual improvement — better performance — lower fan maintenance costs — are the results. In the station at left, thrust, noise, and performance characteristics are checked.

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On fans, for example, over a period of years, maintenance costs can be considerable. We believe, after seventy-six years' experience in air handling, that some of this excessive maintenance cost comes from improper selections of equipment.

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We have the Engineering organization which produced, in 1914, the first edition of "Fan Engineering", ever since, the Bible of the air industry.

We do not hesitate to say, occasionally, "It cannot be done with present equipment."

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B & I . . . . . .

tively to import 42,000 tons of Spanish potash, and to trade in exchange about 17,000 tons of steel plates for shipbuilding.

•

Antibiotics/Germany: Farbwerke Hoechst AG of Frankfurt, Germany, has set up Union Chimique Continentale in Paris, to make and sell antibiotics in France and its territories. The new firm is sponsored by Societe Industrielle pour la Fabrication des Antibiotiques.

•

Synthetic Rubber/Great Britain: The UK Board of Trade has decided to lift restrictions on the import of synthetic rubber from "dollar sources" to Great Britain, for other than strategic uses. Until now, licenses have been issued to importers only when the use was considered essential for defense, other important uses.

•

Refinery/Philippines: California Texas Oil Co. is investing about $30 million in an oil refinery under construction in Batangas province, Luzon, south of Manila. Foster Wheeler Corp. has the construction contract, plans completion late in 1954.

KEY CHANGES. . .

J. Russell Wilson, to vice-president and general manager, Research and Engineering Div., Monsanto Chemical Co., St. Louis.

David W. Chaney, to assistant director of research, The Chemstrand Corp., Decatur, Ala.

Gordon V. Richdale, to president, Engelhard Industries, Newark, N. J.

Frank W. Reif, to sales manager, Colgate-Pamolive Co., Jersey City, N. J.

Gustav Freund II, to vice-president and treasurer, Visking Corp., Chicago.

B. R. Sarchet, to assistant sales manager, Koppers Chemical Div., Koppers Co., Inc., Pittsburgh.

W. R. Jeeves, to the board of directors, Parke, Davis & Co., Detroit.

Karl J. Brunings, to director of chemical research and development, and **Ernest M. Weber,** to director of biochemical research and development, Chas. Pfizer & Co., Inc., Brooklyn.

Robert F. Gager, to director of research, Snyder Chemical Corp., Bethel, Conn.

Tom C. Towler, to general manager, Alloys and Chemicals Div., Frankel Co., Inc., Detroit.

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CHECKING into latest developments of Columbia-Southern's vast tank car facilities is one of Frank Moore's many tasks.

Finger

An all-department, all-level job—'round the clock.

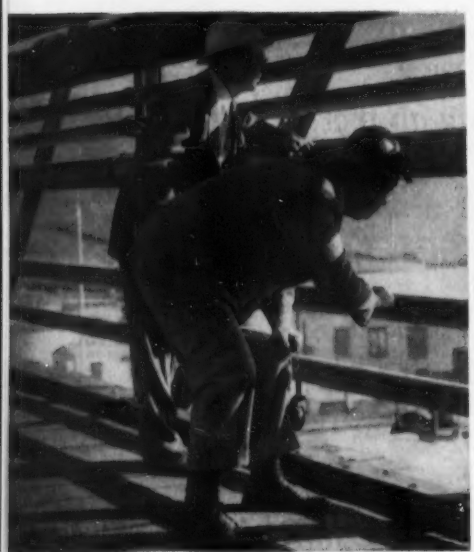
That describes graphically the job of a chemical company traffic manager, one of whose number CW's camera focuses upon this week. Typical, if the word can be applied at all, of the holders of traffic manager's position, is Frank Moore of Columbia-Southern Chemical Corp., a wholly owned subsidiary of Pittsburgh Plate Glass Co.

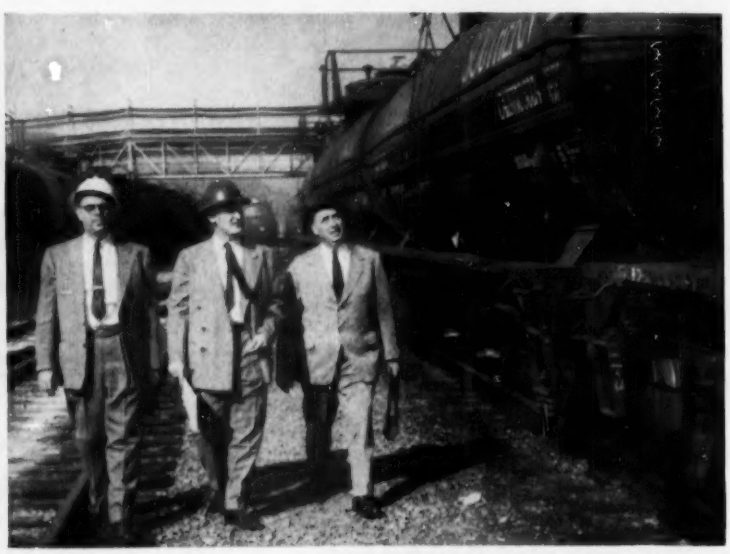
Like the strand in any garment, Moore's functions are woven into almost every company department. In the course of his yearly handling of millions of dollars worth of transportation, his work puts him in contact with Columbia-Southern's production, legal, sales, shipping, tax, accounting and maintenance departments.

Whether you are planning a new product, considering a new source of raw materials, or relocating a plant, Moore feels that the traffic department can contribute valuable knowledge. Developments, whether they be new markets, tank cars or package designs can often benefit from savings tips well known to the traffic man.

And while Moore, in his daily plant peregrinations, was being followed by CW's photographer, other chemical traffic managers were questioned as to how their own backgrounds, responsibilties and duties shape up.

Where From? Because traffic work is both specialized and multifaceted,





WITH Earl Wolf (in white helmet) plant manager at Natrium, Moore chats for a minute on bridge spanning the car yards, while waiting for A. R. Halsechuher, Natrium traffic manager, to arrive for a tour of inspection.

in Every Pie

CW queried the managers as to (1) by what route they arrived at their present position and (2) what kind of training and education they consider especially valuable for traffic work.

• Concerning previous experience, almost three of every four reported they had begun their traffic careers as railroad men, usually clerks.

• Most traffic men, Moore included, rate experience in allied work as highly desirable background. However, the majority affirm that (1) college degrees and (2) specialized transportation management and traffic law courses serve the traffic manager aspirant in good stead. Business administration schooling, too, was labeled valuable by over half the men surveyed. Reason: as the position of traffic manager has grown in stature, its administrative responsibilities have expanded.

How High? Believing that the

MOORE (left) checks with Halsechuher on C-S's chlorine barges.

AFTER discussing chlorine loading operations with loaders Calvin Schoonover and Louis Williamson, Moore confers with Halsechuher concerning current chlorine and caustic shipments down the Ohio.

PLANNING ahead, Moore reviews plant freight yard layout with (left to right) general plant supt. R. L. "Scotty" Hutchison, C-S president Edwin Asplundh, and vice pres. Dwight Means. Later, Moore and asst. traffic manager James Weaver mull over proposed tank car construction change.

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status of the traffic manager's position has shifted in the past few years, CW asked this question: "Do you feel that the traffic manager has received proper recognition and rank commensurate with his responsibilities?" Most responses ran like this:

". . . has not received proper recognition . . ."

". . . has not uniformly received adequate recognition in the light of responsibilities . . ."

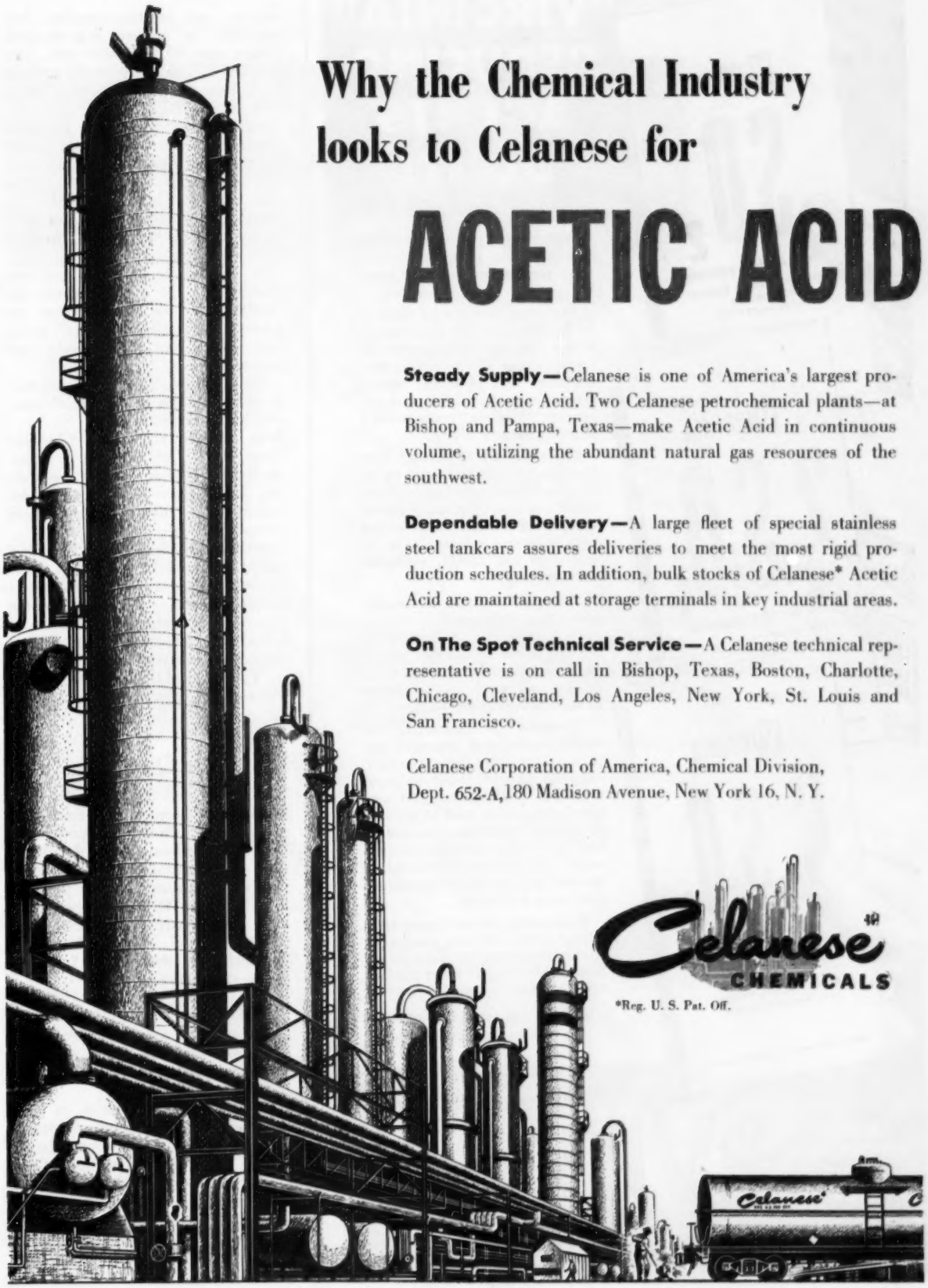
". . . in some cases, yes, but in most cases it has not . . . largely an individual matter . . ."

But even those who consider the job underrated at present are convinced that top management is gradually coming to appreciate "the wisdom of having a strong traffic department." And on the other end of the scale of opinion, Moore, who reports directly to the president, is convinced the traffic manager has "arrived."

Ticking Matter: Although the traffic managers canvassed cited a number of qualities essential to the personal makeup of an ideal man for the spot, several attributes came in for repeated mention. Expressed in various terms, these are:

- "Unusual temperament," "even disposition," "diplomacy" and, in general, a fine sense of tact in contacting many different individuals, coupled with the ability to sell one's own ideas.
- A willingness to study endlessly the great variety of traffic problems and the manner of their solution. Some stressed this trait to the point of labeling it "doggedness" or "stubborn determination."
- Also high on the list of personal qualities, and frequently mentioned, is "adaptability to get results." Some respondents spelled out this trait as a combination of resourcefulness and initiative.

Although not defined in any single term by any of them, the managers agree that, to do a successful job, a traffic man must of necessity be a



Why the Chemical Industry looks to Celanese for

ACETIC ACID

Steady Supply—Celanese is one of America's largest producers of Acetic Acid. Two Celanese petrochemical plants—at Bishop and Pampa, Texas—make Acetic Acid in continuous volume, utilizing the abundant natural gas resources of the southwest.

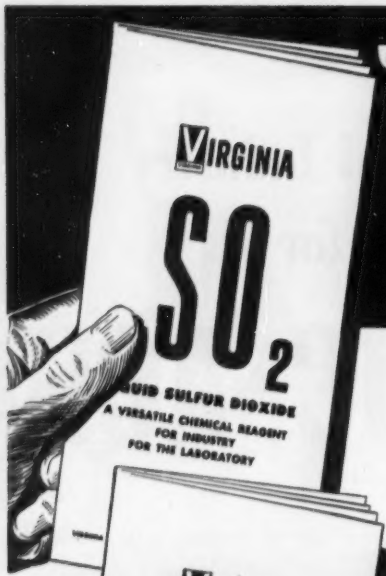
Dependable Delivery—A large fleet of special stainless steel tankcars assures deliveries to meet the most rigid production schedules. In addition, bulk stocks of Celanese* Acetic Acid are maintained at storage terminals in key industrial areas.

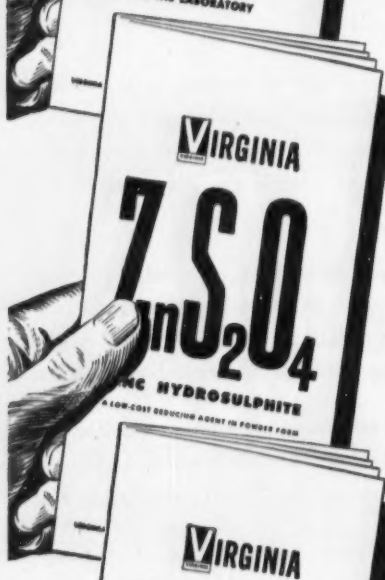
On The Spot Technical Service—A Celanese technical representative is on call in Bishop, Texas, Boston, Charlotte, Chicago, Cleveland, Los Angeles, New York, St. Louis and San Francisco.

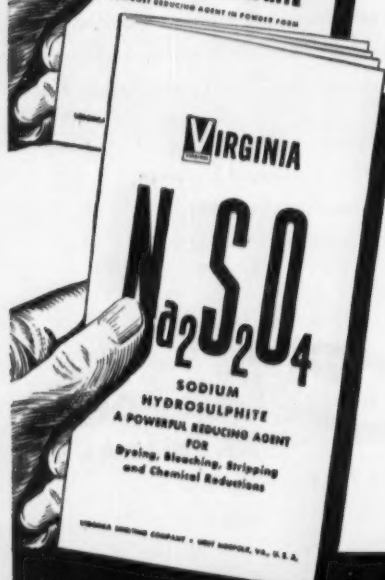
Celanese Corporation of America, Chemical Division,
Dept. 652-A, 180 Madison Avenue, New York 16, N. Y.

Celanese® CHEMICALS

*Reg. U. S. Pat. Off.







"VIRGINIA" REDUCING AGENTS DO IT!

"Virginia" makes three reducing agents—basic chemicals which have proved invaluable in more than 40 important industries.

The most versatile of these is its 99.98+ per cent pure Liquid Sulfur Dioxide. It is favored for its properties as a reducing, neutralizing, and bleaching agent, preservative, antichlor, and pH control. "Virginia" is the world's largest producer of SO_2.

Concentrated "Virginia" Zinc Hydrosulphite is prepared by us expressly as a reducing and bleaching agent for many industries, chief among which is the pulp and paper industry. It is the *only high test* ZnS_2O_4 available commercially.

"Virginia" Sodium Hydrosulphite is widely used in textile manufacturing for efficient reducing operations in the dye house. It is noteworthy for its uniformity, strength, and stability in storage and in the bath.

"Virginia" is constantly researching new and improved applications of these three standard reducing agents. Bring us *your* problems. Perhaps one of these chemicals can be used to advantage in your products or processes, and can cut your production costs. Our technical counsel—backed by 29 years of experience—is freely available.

Write today for our descriptive folders on any of these products. Ample experimental samples of Zinc Hydro and Sodium Hydro are yours for the asking.

VIRGINIA SMELTING COMPANY
Dept. CW, West Norfolk, Virginia

Field Offices:
NEW YORK
BOSTON
DETROIT
CHICAGO
ATLANTA

VIRGINIA *Chemicals*
SINCE 1898

Running Lead . . .

traveler and meeting-attender. Participation in carrier organizations, freight and traffic associations, rate and I.C.C. hearings puts the average traffic man on the road from 20 to 40% of the time.

As a traveler and active organization man, Frank Moore rates among the topmost. Right now, he estimates he's on the road 30 to 40% of his time. And that's mild compared to his World War II travels, when he spent an average of 80% of his working hours traveling.

Willingness to travel is just one characteristic of a man whom the "traffic bug" (as one of them expressed it) has bitten. A "real" traffic man admits he eats, drinks and dreams his job.

On this point, Moore's son (no traffic man) had this to say: "Dad's married to the profession."

Sales Agent: Millmaster Chemical Corp., (New York City), is now representing Hydrocarbon Chemicals, Inc. as exclusive selling agent for sulfonic acid, sulfonates and related products.

Ammonia Division: Shell Chemical Corp. has formed a new West Coast ammonia division with headquarters in San Francisco. It will handle the manufacture, distribution and sale of anhydrous ammonia and ammonium sulphate. Formation follows the opening (Dec. 11) of the new Shell Chemical ammonia plant at Ventura, Calif.

Drive for Quality

Last week, vinyl film producers, in a preview luncheon in the East Ballroom of the Hotel Commodore in New York, revealed the details of their program for recognition of a standard of quality for their product.

Unlimbering their promotion guns in a preliminary salvo, the vinyl makers, through their trade group, the Society of the Plastics Industry, disclosed their intent to:

- Publicize their newly adopted Vinyl Film Seal of Quality.
- Encourage vinyl film processors to comply with the Dept. of Commerce-approved Vinyl Film Standard of Quality.
- Urge vinyl fabricators to purchase film from only those companies that are complying with the standards.

John O'Connell, president of Consoldiated Molded Products Corp., and SPI president, sounded the opening gun in the drive for standard, publicly recognized vinyl film quality:

"Every practical method we can use to educate the consuming public,

NATIONAL CAN

PACKAGING FOR

NC's team of production expert — research chemist and merchandising counsel is just as vital to the paint industry. Their half century of can making know-how enables them to solve packaging problems for most any type of product...cans for cleaners and stains are just two of the paint industry packages they have developed. A call or wire puts them to work on YOUR packaging problems, too. No obligation, of course.

NC

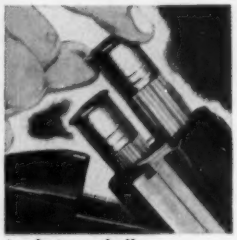
NATIONAL CAN

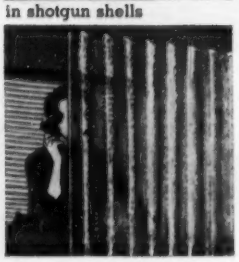
CORPORATION

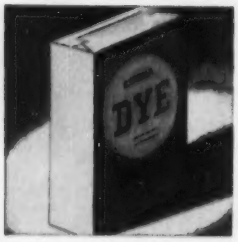
Plants At: BALTIMORE, MD. • CHICAGO, ILL. • MASPETH, N.Y.
CLEVELAND, OHIO • HAMILTON, OHIO and WARREN, OHIO

Here's how you can use PHTHALIC ANHYDRIDE

in paints

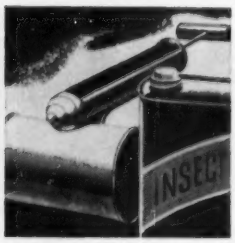

in shotgun shells


in corrugated partitions



in dyes

in clothing bags



in insect repellents

KOPPERS PHTHALIC ANHYDRIDE is a flaked, white solid, having a minimum purity of 99.7%, and possessing excellent color stability. It reacts readily with alcohols, glycols, and glycerol to produce esters which are used on a large scale industrially for plasticizers and for alkyd resins. These resins are ideal for the manufacture of quick-drying coating compositions for interior and exterior applications such as paints, varnishes, enamels, and lacquers. In industrial finishes for household equipment, automotive equipment, and machinery, Phthalic Anhydride has found wide acceptance due to the durable finish it creates. It has also found successful application in the fast growing field of polyester resins.

Free-flowing Phthalic Anhydride has also found extensive application in the production of smokeless powder, dye intermediates, insect repellents, pharmaceuticals, perfume fixatives, and food preservatives. Its unlimited potentialities invite further laboratory research. Perhaps *you* can use Phthalic Anhydride.

Phthalic Anhydride is only one of a number of synthetic chemicals produced by Koppers, including Di-tert-butyl-para-cresol, Resorcinol, Styrene Monomer, Polystyrene, and Divinylbenzene. For further information on any of these chemicals, write to:

KOPPERS COMPANY, INC.
Chemical Division, Dept. CW-14
Pittsburgh 19, Pennsylvania

SALES OFFICES: NEW YORK · BOSTON · PHILADELPHIA · ATLANTA · CHICAGO · DETROIT · LOS ANGELES

KOPPERS® **Koppers Chemicals**

DISTRIBUTION. . . .

VINYL SEAL: Something to look for.

retail buyers and sales personnel, and the industry generally as to the meaning of the program will be employed." Spelled out, this means that the Seal of Quality will be featured in:

- Consumer and business magazine advertising.
- Radio and television demonstrations in connection with the advertiser's product.
- Packaging imprints and inserts, hand tags, fact tags, tickets and labels.
- Sales literature, correspondents, and dealer helps.

Only too well aware that the reputation of their products has already suffered from "cheap substitute" selling by "traders," the sponsors of the Vinyl Film Seal are determined to impress the consumer that it's to his advantage to look for their hallmark.

•

Bleaching System: Pennsylvania Salt Manufacturing Co. now offers the pulp industry a chlorine dioxide generation and bleaching system including technical and engineering service on all chemicals and equipment utilized in these operations.

•

The DuKane Corp. (St. Charles, Ill.) is producing a sound slidefilm projector using long-playing records to give a 22-minute sales presentation or technical training lecture. The entire equipment—including amplifier, projector, films, record and screen—fits into a briefcase-size container.

•

Industrial films released this week:

- Hercules Powder Co. (Wilmington) has a 20-minute color-and-sound movie describing how several companies have utilized the latest developments in hot lacquer techniques.
- California Spray-Chemical Corp. (Richmond, Calif.) has a color-and-sound motion picture "Keep America Growing . . . Quality Fruit", dramatizing how the grower, fieldman and scientist team up to produce top-quality, disease-free fruit.

BECCO® BRIEFS

PEROXYGEN CHEMICALS

The properties of Becco Peroxygen chemicals, and their current and potential uses, are described in a large number of detailed and authoritative bulletins. Send for your copy of Becco's Bulletin List.

Becco Peroxygen products include Hydrogen Peroxide, Peracetic Acid, Sodium Carbonate Peroxide, Sodium Pyrophosphate Peroxide, Urea Peroxide, Calcium Peroxide, Magnesium Peroxide, Zinc Peroxide, Potassium Persulfate, Ammonium Persulfate, Acetyl Peroxide, Sodium Perborate.

Buffalo Electro-Chemical Company, Inc.

DIVISION OF FOOD MACHINERY AND CHEMICAL CORPORATION

Sales Agent: BECCO SALES CORPORATION, Station B, Buffalo 7, N.Y.
Buffalo • Boston • Charlotte • Chicago
New York • Philadelphia • Vancouver, Wash.

Please send me the Becco Bulletin List from which we may select bulletins of interest to us.

Name .....

Company .....

Street ..... Zone ..... State .....

City .....

New Chance for Thiophenes

Now being introduced by United Dye and Chemical Corp. is a new source of thiophene chemicals.

It's an unusual thiophene-rich oil, extracted from French bituminous limestone deposits.

Projected applications revolve around the material's ability to ward off wood-destroying organisms, protect industrial workers against occupational skin disorders. Other uses are under research scrutiny.

For three years now, the French have literally been mining thiophene chemicals, selling them for a brace of commercial uses.

This week, France's liberated thiophenes are trying hard to establish an American beachhead. Sponsored by United Dye and Chemical Corp. (Belleville, N.J.), the sulfur-containing heterocyclics will soon be bidding for gainful employment as wood preservatives, oil and soap additives.

Apparently unique in their origin, thiophenes are mined from bituminous limestone deposits in the mountains above southern France's Rhone River. The ore is taken from veins of 9-15 ft. in diameter, crushed and charged into a battery of furnaces. Between 200 and 660 F, a brown oil containing about 14% thiophenic sulfur comes off in three fractions (approximately 200, 250 and 400 C).

The entire operation, from crushing to pyrogenation and distillation, is carried out right at the mine site. Product, because of its unusually high thiophene content, stands out among petroleum and coal materials.

Composed of thiophenic and polythiophenic homologs (practically no free thiophene), the oil has found use in France as a preservative for frame structures and various wood products. According to United Dye and Chemical's Max Luft, who scouted the development, the French army now ships ammunition in boxes treated with thiophene oil.

Although its mode of action is not thoroughly clear, the thiophenic oil protects the wood against termites and microorganisms. Moreover, it is supposed to be easier to use than most wood-treating agents, allegedly penetrates without pressure and at normal temperatures. Applied by painting, spraying or immersion, it's said to impart water repellency as well.

Skin Aid: Another foreign outlet for the material is in the prevention and treatment of industrial skin disorders caused by lubricating oils. Luft reports that the French textile and metallurgical industries have "practically eliminated skin pimples, all kinds of dermatitis and other occupational infections" by incorporating the thiophenic product into spindle oils, cutting oils, etc. Soap containing 5% thiophenic oil has reportedly given comparable results.

Outside of lumber treatment and industrial hygiene, applications are mainly in the realm of research. Sulfonation of the oil yields a water-soluble, oil-miscible substance that can be used to prepare thiophenic oil emulsions. Such emulsions are now being evaluated as:

- Fungicidal and insecticidal sprays for such crops as coffee, cocoa, fruits.
- A means of preventing further damage to wooden structures already infested with termites and fungi.

Several other commercial possibilities for the crude oil are also being eyed. Among them:

- Insecticides produced by chlorination.
- Fungicidal and insecticidal solvents and drying oil additives.
- Drying oils formed by treatment with cold aluminum chloride.
- Dye and polymer applications for thiophene homologs fractionated out of the oil.

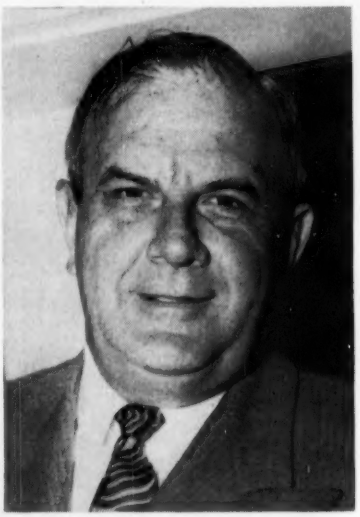
United Dye and Chemical is now probing these potential money makers, hopes to interest others in its import. How successful the company will be depends, in large measure, on how low a cost it tacks onto the product. A question of import duty, now pending at the New York Customs House, must be settled before any hard figure is arrived at. Even if the decision goes against the firm, a price in the 20-25¢/gal (about 8 lbs.) range would probably not be out of line for the crude material.

Cost was the chief stumbling block to earlier attempts at the commercial development of thiophene. About eight years ago, Socony-Vacuum Oil Co. launched its drive to commercialize a synthetic thiophene produced from ammonia and petroleum refinery gases. Setting a formidable goal—to drop the cost of synthetic thiophene from $50 to 50¢/lb—the company pushed laboratory research to completion, followed through with a semi-commercial plant at Paulsboro, N.J.

Cost of the synthetic product leveled at about $2/lb. Major outlets were in antihistamine production, fine chemicals manufacture. But potential markets for the chemical in pesticide, wood treating and several other applications were ruled out by its cost.

About two years ago, Socony went out of the thiophene business, dismantled the Paulsboro plant and put up its patents for the inspection of potential licensees. Negotiations for a package deal are now under way with several firms, reports Socony.

But, as of this moment, no one is making or selling thiophene or its homologs on a large-scale basis. With these two potential copious sources vying for the spotlight, however, there's no guarantee that the thiophene drought will last.



ANTITRUSTER BARNES: For foresighted effort, a poor reward.

Counterattack

Jarred to the marrow by an apparition marked "cancer," the cigarette industry last week rallied to offset the threat to its continued well being. First move of the counteroffensive was a broadside of full-page newspaper ads heralding the formation of Tobacco Industry Research Committee by 14 prominent tobacco firms, growers associations and warehouse groups.

Headquartered at the Empire State Building suite of New York's Hill and

100%
Polymerized Petroleum
Resin

PICCOPALE

→ *a new petroleum* BASIC RAW MATERIAL

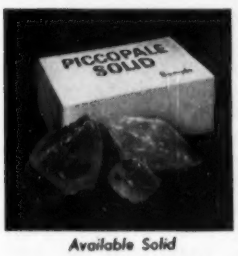
→ *available in* LARGE *quantities*

by the trainload if you want it

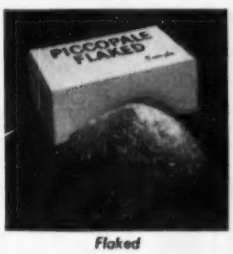
at low cost per pound!

PICCOPALE—the new, low-cost, large production, high quality petroleum resin opens new avenues to product-improvement and cost-reduction in a wide variety of application. Send for complete information and samples so that you may investigate for yourself its possible uses in your processing.

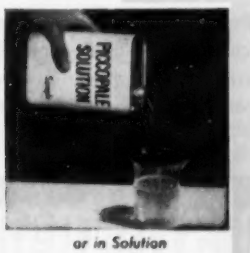
- CLEAR, CLEAN
- TRANSPARENT
- COMPATIBLE
- THERMOPLASTIC
- READILY SOLUBLE



Available Solid



Flaked



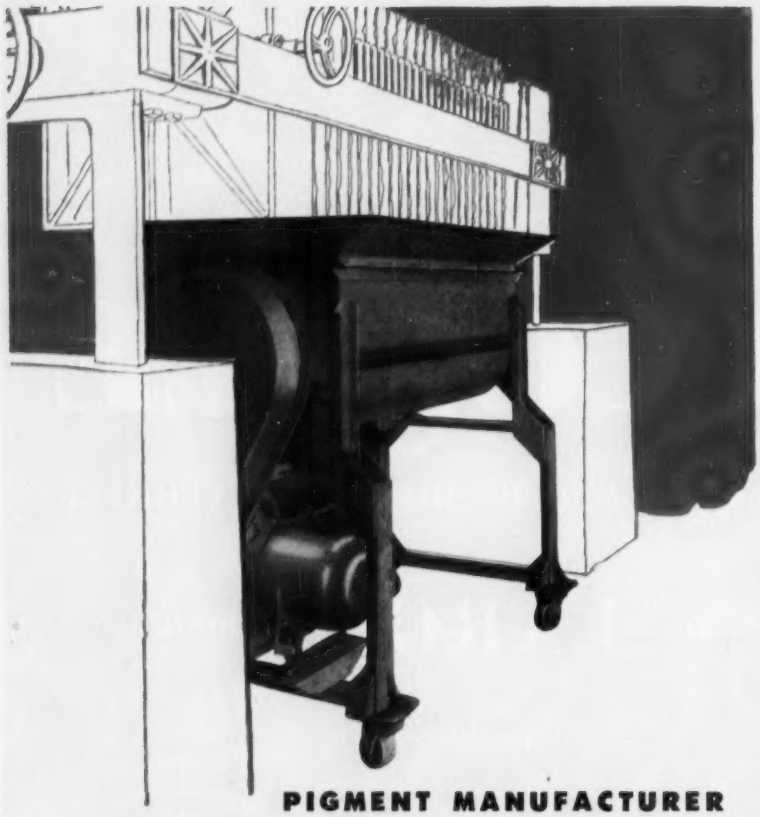
or in Solution

Write, wire or phone for complete data and samples

PENNSYLVANIA INDUSTRIAL CHEMICAL CORP. CLAIRTON, PA.

Plants at Clairton, Pa.; West Elizabeth, Pa.; and Chester, Pa.

Sales Offices in the New York, Chicago, Philadelphia and Pittsburgh districts



PIGMENT MANUFACTURER BREAKS PRODUCTION BOTTLENECK WITH READCO MIXERS

A large producer of water soluble paint pigments faced a problem confronting many management men . . . how to get more production—in a hurry.

In an analysis of his process, a bottleneck was found. Pigment solids were being removed from the emulsion in filter presses. Unmanageable filter cake was being scraped from the presses and shoveled into drums, a costly, time-consuming process.

A series of laboratory tests pointed out the simple solution. A battery of Readco Spiral Ribbon Mixers was installed beneath the presses. These mixers reduce the cake into a homogeneous, semi-liquid mass, ready for shipment. Processing time and costs have been greatly reduced.

You can approach your production problems in the same way. The Read Standard Corporation not only manufactures a broad line of chemical processing equipment, it offers you the services of its engineering specialists and laboratory facilities to assist you in the solution of your special processing problem.

READ STANDARD
CORPORATION

BAKERY-CHEMICAL DIVISION, York, Pennsylvania—Los Angeles 39, California

RESEARCH . . . . . .

Knowlton public relations agency the new group will chart a program of joint financial aid to all phases of tobacco research; though not stated in so many words, special emphasis presumably will be devoted to the lung cancer problem.

In charge of the committee's activities, according to the 14, will be "a scientist of unimpeachable integrity" assisted by "an advisory board of scientists disinterested in the cigarette industry."

But as of this moment, no committee head has been appointed. He'll be chosen, according to a Hill and Knowlton spokesman, by a group made up of the top research men of the individual participating firms. This group also will choose the board of advisors.

Plans for the kind of research program to be undertaken are also very much up in the air. The committee chief and his advisors, states Hill and Knowlton, will decide whether to build laboratories, concentrate on grants, or do both. Further word on the subject will be forthcoming soon, said the committee-retained public relations agency.

Hatched in an aura of careful deliberation, the new cooperative venture has rekindled memories of 1911 and the breakup of American Tobacco by the Trust Busters. According to a committee spokesman, however, the participating companies are confident that their actions are not in conflict with the antitrust laws.

But it's interesting that a group of cigarette executives did journey to Washington, meet informally with Judge Stanley Barnes, chief of the Justice Dept.'s antitrust division. From all appearances, their foresighted efforts were poorly rewarded. Barnes gave no assurances, one way or the other, on either jointly financed research, or a jointly financed advertising campaign.

Sure Way: The antitrust chief could point out only one way they could be sure of keeping clear of any kind of trouble in the research program: forego joint action, contribute on an individual basis to existing research organizations. On the publicity side, there appears to be no danger in the kind of cooperative "one-shot" ad (announcing TIRC), which ran in newspapers throughout the country. But a sustained industrywide advertising barrage could start the antitrusters stirring.

It doesn't seem likely however that they'll intercede in the current situation. Main reason: the whole atmosphere of the tobacco business is a

Dependable Source for Chemical Raw Materials

Clifton B. Smith, Manager of Operations, and some typical packaging designs by Transparent Package Company, Chicago, Ill.

Secret weapon for more sales

Transparent packages, made with quality ingredients including Wyandotte Caustic Soda, are the secret weapon in many of the modern methods used in successful sales programs in the food field. Read what Clifton B. Smith, Manager of Operations, Transparent Package Company, Chicago, Ill., says:

"Our business is mighty competitive. Almost every job is a custom job, starting with the design and ending with the printing right in our own plant. Many of our Tee-Pak processes are exclusive. We cannot divulge them to others. But, we can say that we appreciate the technical service Wyandotte Chemicals furnishes us, and we have always found Wyandotte Caustic uniform and of consistent high purity. This is a must with us in the food industry.

"We, at Tee-Pak, like the way, too, that Wyandotte representatives keep supplying us with new product development data which they think may be of importance to us."

How about *your* business? If you use alkalies, chlorine, calcium chloride, wetting agents, detergents, solvents, fumigants, insecticides, or other organic or inorganic chemicals, contact Wyandotte for either product data or technical service. Tell us your requirements . . . we may have an existing chemical, or work with you in developing a new one, that will satisfy your needs. *Wyandotte Chemicals Corporation, Dept. CW, Wyandotte, Michigan. Offices in principal cities.*

Wyandotte
CHEMICALS
HEADQUARTERS FOR ALKALIES

P.S.: If you have need for pertinent data on Caustic Soda, send for Wyandotte's new Caustic Soda Book . . . you'll find it helpful.

PREVENT CORROSION OF METALS

Zinc — Cadmium — Copper — Brass — Steel

ENTHOX — Chromating process for zinc and cadmium. Very easy to use and economical. Stops corrosion in damp atmospheres and in salt fog. If you have trouble meeting salt spray specifications on zinc and cadmium use Enthox.

EBONOL "C" — An alkaline chemical process for producing black oxide coatings on copper and its alloys. Coating is durable, corrosion resisting, jet black. Meets all government specifications for oxide coatings on copper base alloys.

COMPOUND NR-31 — A mildly alkaline rust-inhibiting material. Used in concentration of 1 - 2 oz/gal. in water to prevent rusting during indoor storage or during drying of water films. Imparts corrosion resistance for storage. Leaves a thin film that is easily removed by a water rinse.

COMPOUND NR-37 — An organic material added to cold or hot water to prevent rusting of steel, cast iron and ***porous*** iron including powdered iron parts during storage or during drying of the water film. Leaves no residue after the water has evaporated.

COMPOUND 39 — Compound for performing light cleaning and iron phosphating in one operation. Phosphate coatings are thin and highly adherent. Particularly suitable as bases when high adhesion of paint and enamel is required.

COMPOUND NR-40 — A neutral compound added to water to promote cleaning and to prevent rusting of steel. Excellent for interprocess cleaning and protection. Material is easily removed by a water rinse.

RUSTPROOFING OIL NO. 15 — A thin-film, water shedding, rustproofing oil. Highly protective in salt spray and humidity.

RUSTPROOFING SOLUBLE OIL — A special water-soluble oil to produce corrosion resisting oil films on metal. Also an excellent water soluble cutting oil.

Literature Gladly Sent On Request
Describing Each Product In Detail

METAL FINISHING PROCESSES

ENTHONE
INCORPORATED
442 ELM STREET
NEW HAVEN, CONNECTICUT

ELECTROPLATING CHEMICALS

far cry from what it was during the free-wheeling early 1900s; government is not looking for a chance to pounce. Nevertheless, the antitrust spectre may be enough to scare off some potential participants in TIRC. Straw in the wind: Liggett & Myers, a member of the tobacco "big five," is not participating in the committee.

Coming as a rejoinder to dire medical reports (*CW, Jan. 2*) arising from mushrooming lung cancer statistics, TIRC might contribute much in the interest of truth. But its establishment is not likely to end the cancer rhubarb. Not the least interested of sideline spectators awaiting the next development are the manufacturers who satisfy the cigarette industry's ravenous appetite for chemicals.

Small and Safe

The nation's newest atomic pile hummed into operation recently at Atomic Energy Commission's Livermore, Calif., facilities. Designed and fabricated by North American Aviation (Downey, Calif.) the new reactor, like North American's captive model, will be used exclusively for research. It is operated by California Research and Development Co., a major AEC contractor at the Livermore station.

A "water boiler," the latest nuclear research weapon consists of a stainless steel sphere one foot in diameter, containing an aqueous slution of enriched uranium sulfate. The steel sphere is embedded in a stack of graphite bars within a steel cylinder, five feet in diameter and five feet tall. Several inches of lead surround the outer tank; additional shielding is provided by a surrounding wall built of three-foot thick concrete blocks.

Normal operating power of the reactor is 100 watts, but the level could be jacked up to 2,000 if required by future experiments.

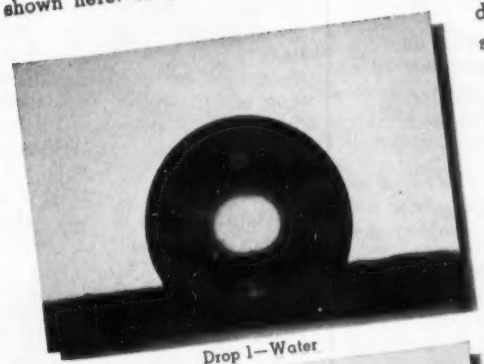
Prototype of reactors suitable for industrial atomic energy research programs, the Livermore water boiler is about as safe as you could ask. In addition to the multitude of protective devices built into the pile, nature is working in the cause of safety: if the reactor should, through unforeseen causes, get out of control, the flood of energy released would stop the reaction by boiling over the uranium solution.

Added interest-sparking features: it's possible for the reactor to run for as long as 10 years without refueling; all radioactive by-products of the fis-

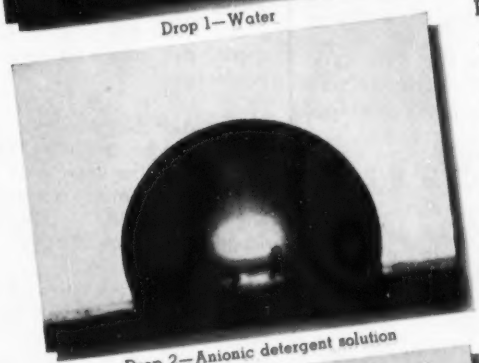
How does TRITON X-100 clean so many surfaces?

TRITON X-100 is a Rohm & Haas non-ionic detergent exceptionally effective as a cleaner for hard surfaces such as aluminum, steels, copper, brass, zinc, iron, ceramic tiles, hard rubber, linoleum, glass and many plastics.

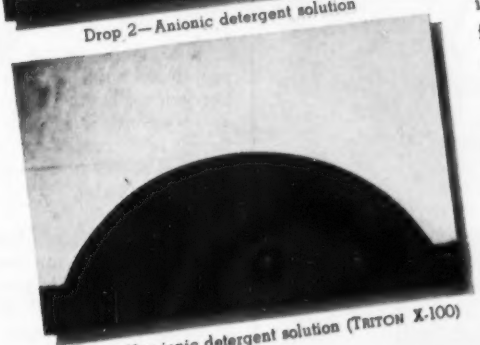
One important reason for the all-inclusive cleaning power of TRITON X-100 is its ability to *preferentially* wet the surfaces it cleans. This phenomenon is graphically illustrated in the micro-photographs shown here. They show a typical substrate (steel in this particular case) completely immersed in oil. Individual drops of anionic and non-ionic detergent solutions have been placed on the steel plate with a micropipette. For comparison —a drop of water is also shown.



Drop 1—Water



Drop 2—Anionic detergent solution



Drop 3—Non-ionic detergent solution (TRITON X-100)

Drops #1 and #2 retain their semi-globular shape—they show a high contact angle between the drop and the test surface. The water and the anionic solution are unable to displace the oil film from the steel surface and therefore their cleaning power is limited.

Drop #3 (TRITON X-100 solution) has flattened out contact angle. It hugs the surface and shows a low face *preferentially*—it displaces the oil film from the surface and therefore, does a better cleaning job.

TRITON X-100 is such an effective and universal cleaner because its solutions immediately develop a low contact angle with *many* surfaces; because it quickly wets substrates; and because its solutions readily displace soil from the surfaces; and finally, because TRITON X-100 can be easily rinsed off—leaving a sparkling clean surface.

Further information on test procedures for laboratory evaluation of hard surface detergency is available upon request.

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RESEARCH . . . . . .

sion process are retained in the unit, not exhausted into the atmosphere as is the case with larger reactors.

According to North American Aviation, nuclear research scheduled for the reactor will include fundamental studies as well as test work with potential nuclear engineering materials.

•

Build-up: Natural gas will occupy chemists of a new research laboratory now under construction at Newton, Mass., by National Research Corp., and slated for completion by the middle of next month. It's one phase of a move to expand operations of its petrochemical department.

•

Word on Structure: New information on the composition of tung oil has just come from the U.S. Dept. of Agriculture's Southern Regional Research Laboratory (New Orleans, La.). Working with a- and b-eleostearic acids (which comprise 80% of tung oil) the SRRL researchers discovered that the alpha form has one cis and two trans double bonds; the beta has three trans olefinic bonds. This information, says USDA, should facilitate research on chemical modification of tung oil.

•

Available: Semicommercial quantities of thiophenol may now be had from Evans Chemetics, Inc. (New York). Potential uses: in pharmaceutical synthesis; dye manufacture; and resin production.

•

Platers Aid: Electrochemists and engineers can get the latest comprehensive data on the analysis of gold and gold alloy solutions from a survey prepared by Technic, Inc.'s (Providence, R.I.) Edward Parker.

•

Water Armorer: A new technique for producing water-resistant fibers is the brainchild of Eastman Kodak Co.'s Hugh Hagemeyer. By Hagemeyer's method (U.S. patent 2,663,617) the protein material is acetylated in solution with diketene, then treated with an aqueous formaldehyde solution. Result is a cross-linked protein material that shows no appreciable shrinkage in hot water.

•

Coating Hopefuls: Ester modified polyamide resins for protective coatings are dividends of research by William Winkler of T. F. Washburn Co. (Chicago). The new resins are formed by heating polyamides (produced by the reaction of unsaturated fatty acids and an alkylene polyamine) with a vehicle such as glyceride oils, modified alkyds and

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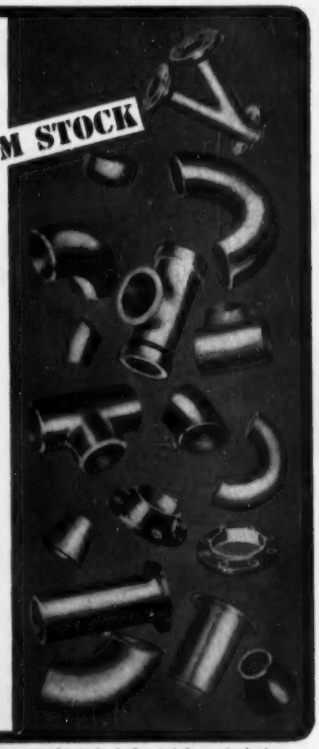

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RESEARCH. . . . . .

varnish esterbodies. Products are covered by patent 2,663,649.

• Also new to the coatings scene is a polyethylene covering process developed by Du Pont researcher Wilford Railing. Here, according to U.S. Patent 2,663,652, is how the method works: a powdered mixture of polyethylene and a volatile hydrocarbon (or chlorinated hydrocarbon) solvent is applied to the surface to be coated and heated at a temperature below the boiling point of the solvent. Coating is ready when substantially all of the solvent is baked out.

•

New Approach: A new path to dihydrostreptomycin has been blazed by Schenley Laboratories (Lawrenceburg, Ind.) chemist Gabor Levy, who has devised a novel technique for the electrolytic conversion of streptomycin to its reduced form. By means of the newly patented (U.S. 2,663,685) process, streptomycin is introduced to an alkaline cathode chamber of an electrolysis cell; current is applied until practically all of the antibiotic is reduced. The new technique may also be used with salts of streptomycin.

•

Double Dividend: Chemists Halbert White and Don Wysong of Dow Chemical Co. are credited with the development of an interesting synthetic procedure for the production of hydantoin and glycine. Here's how the new dual-purpose synthesis is carried out: formaldehyde is added to an aqueous solution of ammonium carbonate and an alkali metal cyanide over a period of four hours. During the addition period, temperature of the reaction is held between —10 and 30 C; to finish the reaction, the solution is heated.

•

Halogen Switch: A convenient synthesis of 1,1-di-H-perfluoroalkyl halides is the news from the laboratories of Minnesota Mining and Manufacturing Co. (St. Paul, Minn.). Developed by researchers George Tiers, Harvey Brown and Thomas Reid, the new method utilizes *p*-toluenesulfonyl (tosyl) esters as stepping stones to the desired compounds. To prepare 1,1-di-H-perfluorobutyl iodide, for example, 1,1-di-H-perfluorobutyl *p*-toluenesulfonate is reacted with sodium iodide in high-boiling glycol. Significance of the mixed halogen synthesis: accessibility of 1,1-di-H-perfluoroalkyl chlorides clears the way for the preparation of previously unobtainable but potentially valuable mixed halocarbon derivatives (e.g., 1,1,1-trichloroperfluoroalkanes).

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RESEARCH . . . . . .

Cyanide Cleanup: American Cyanamid Co. has been assigned a patent (2,664,396) on a new technique for cleaning up cyanohydrin-containing solutions. Key to the method is a strongly basic anion exchange resin containing quaternary ammonium groups and activated by an alkali metal hydroxide solution. On passage through the ion exchanger, aldehyde and ketone cyanohydrins are decomposed; and substantially all of the resulting hydrocyanic acid is removed from solution.

•

Lubricant Beamed: A new group of rust inhibitors are highlighted by the research efforts of Victor Chemical Works' (Chicago) Willard Woodstock and Thomas Beck. The compounds, covered by patent 2,664,400, are reaction products of soyamine and an octyl acid pyrophosphate. They're specified for use in pertoleum lubricants.

•

Fiber Formers: Copolymers of acrylontrile and nicotinamides are the newest candidates for appraisal as fiber formers. Product of Chemstrand Corp. research, the copolymers (protected by patent 2,664,412) contain at least 80% acrylonitrile.

•

Glass Aid: A versatile new glass lathe is the offering of Bethlehem Apparatus Co. (Hellertown, Pa.). Designed for a number of laboratory glassworking chores, it can be used, according to the company, to make ring seals, tees, flanges, closures and a variety of repairs. Trade named Lab-Lathe, the machine handles tubing up to 100 mm in diameter, weighs 150 lbs, is powered by a 115-volt ac motor.

•

Joint Venture: A joint research undertaking by Battelle Memorial Institute (Columbus, Ohio) and Barrows Porcelain Enamel Co. (Cincinnati) has paid off with a tough new porcelain enamel. Glass-based, the enamel was developed to serve as a protective coating for steel equipment exposed to molten aluminum. Of primary value to the aluminum industry, Barrows' new ceramic also has possibilities in other metallurgical outlets. It is reported to more than hold its own in corrosive media up to 1,400 F.

•

Nearing Completion: National Aniline Div.'s (Allied Chemical & Dye Corp.) new Buffalo, N.Y., research center is rapidly taking shape, should be ready for occupancy by next summer. When completed, the new facilities will have set National Aniline back an estimated $2.8 million.

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TRIETHYLENE GLYCOL DIMETHYL ETHER
$CH_3(OCH_2CH_2)_3OCH_3$

ANSUL ETHER-181

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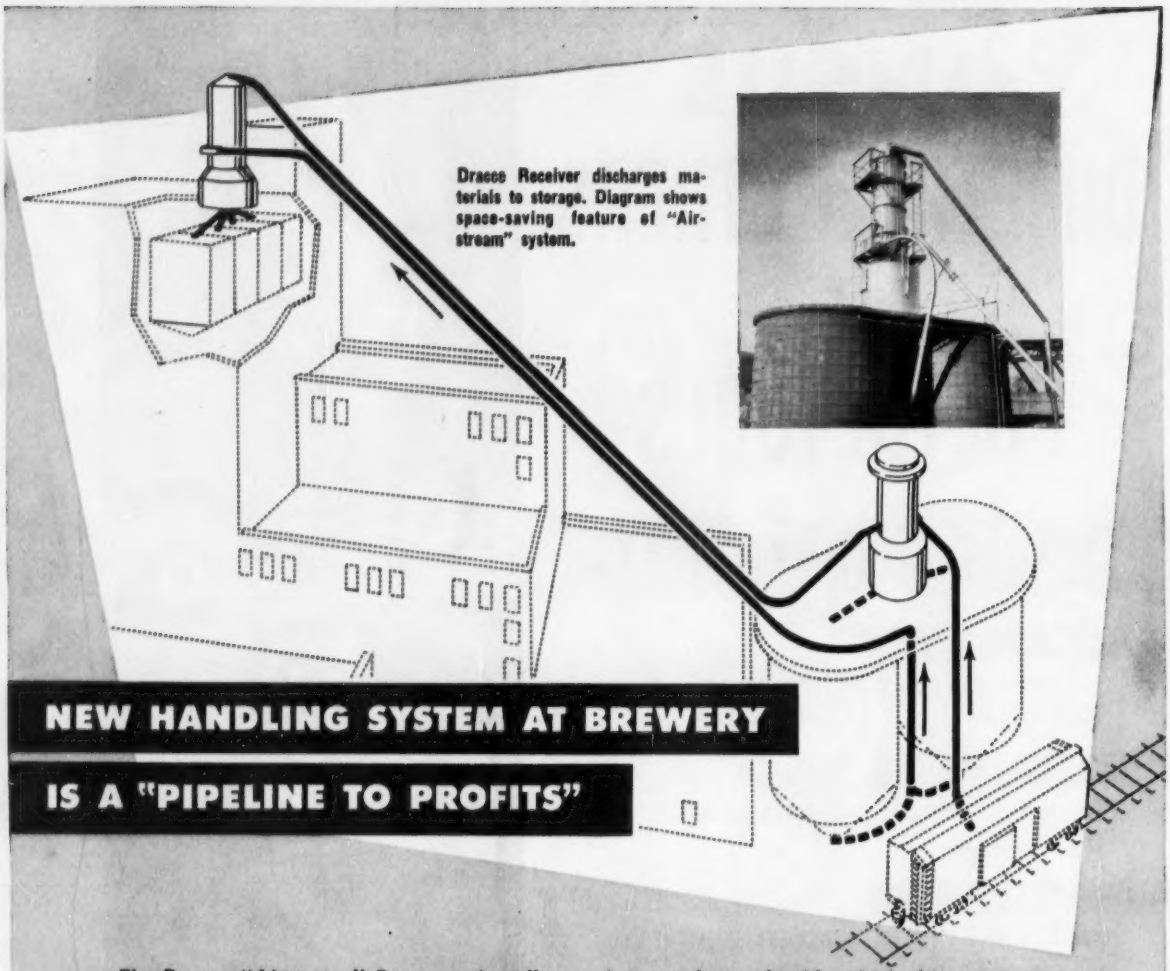

Dracco Receiver discharges materials to storage. Diagram shows space-saving feature of "Airstream" system.

NEW HANDLING SYSTEM AT BREWERY IS A "PIPELINE TO PROFITS"

The Dracco "Airstream" Conveyor installation at the Cumberland Brewing Company in Cumberland, Maryland is literally a "pipeline to profits".

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FLOTAL BAGGING: One hopeful in a pretty discouraged field.

The Gloss Is Gone

With something less than enthusiasm, makers of soil conditioners face their third season. Sales were generally disappointing in '53—less than in introductory year '52.

Promotion of the conditioners will likely be less this year—perhaps accounting for the lukewarm attention paid to FTC-sponsored SC trade practice conference in Washington last month.

Market ahead depends on convincing gardeners of SC advantages—by a re-education program, rather than by flamboyant promotion that typified the first year of the products.

Bombshell at birth, hardly an echo now. That may be putting it a little strong, but there's no denying that chemical soil conditioners, the big agricultural news of '52, hold only a fraction of the attention they once held. Even the 5¢/lb. cuts* in acrylonitrile prices (*CW Marketletter, Jan. 2*), which might lead to a much-needed reduction in sodium polyacrylate prices, have failed to cheer jaded SC manufacturers into feeling that '54 sales will be particularly good. Further indication of the waning enthusiasm was the spottily attended and inconclusive trade practices conference sponsored by the Federal Trade Commission in Washington last month.

The conference endeavored to settle the problems related to advertising soil conditioners. In 1952, the FTC had to clamp down on one firm's advertising of its conditioner, and there has been some uncertainty since on just what could be regarded as legitimate claims. The Washington get-together, though, didn't settle much; there is still debate about what products should be classified as soil conditioners. There is still disagreement about how much, and how deep conditioners should be applied. And while the FTC doesn't want firms saying the SC's can convert heavy clay soils into soils of good tilth, industry claims that is just what they can do.

Rule Wrangle: To these disagreements add some lesser unsettled points: Should amount of active ingredient be listed on the label? Some say that could actually be misleading. Should soil conditioner-fertilizer combinations be regulated like SC's or fertilizers? Strict definition of SC's would put the combination under a fertilizer heading.

Currently reformulating trade practice rules, FTC attorneys hope to get down to public hearings on conditioners by February. After that, rules may have to be rewritten again.

All this controversy contributes to the gloom of soil conditioner makers. But for the most part, it's because sales were almost universally disappointing in '53, the first full year for soil conditioners. Formulators indicate that they still have year-old stock on hand. Dealers repeat the claim, and in a slightly miffed tone say they had been misled about the sales possibilities of the conditioners.

The picture isn't all black, though. Du Pont, for one, admits with surprise that several of its jobbers have made inquiries, placed orders. Several others report some slight dealer interest, too.

Monsanto, stoutly proclaiming that sales of its products never have and never shall equal hopes and expectations, says "important sales progress" was made with Krilium. (Some retailers report it was virtually the only one sold.) Stauffer, which introduced its ferric ammonium complex Flotal last year, says its sales were good enough to encourage it to broaden distribution from northern California to the entire California area this spring.

Oversold: Monsanto's and Stauffer's optimism, however, are for products that haven't the stigma of overpromotion attached to them. Retailers speak with disgust of products touted "like they would turn a concrete driveway into a pansy bed."

Other dealers, more liberal, feel that the public overly reacted to the soil conditioner advertising, burned its own fingers. Gardening wonders aren't limited to the last few years—it was vitamin B_1 before the war, for example, and there will likely be others.

From the firms that intend to stick in soil conditioner manufacture, there is a frank admission that 4-5 years will be needed to get the public to understand the value of soil conditioners. After the novelty has worn off, it will be the solid plant enthusiast, not the week-end-if-it's-easy gardener who'll buy the soil conditioner.

Soil Building Course: In line with that way of thinking, Monsanto, "recognizing its position as industry leader and aware of its responsibilities," will continue to promote Krilium to consumers. It intends to equal and in

* To 31¢/lb., tank cars; 33¢/lb., truck loads of drums; 34¢/lb. in smaller quantities.

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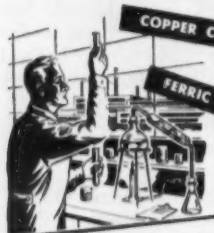

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some areas exceed, its '53 advertising program.

Stauffer will expand dissemination of the word on Flotal, and a few of the other suppliers of the sodium polyacrylates suitable for soil conditioners intend to continue trade advertising. Others, like Wilson, (both a supplier of the acrylate and a seller of the formulations) and Nott Mfg. Co. (formulating with American Cyanamid's Aerotil) figure that the conditioners haven't sufficient promise this year to receive much of their advertising dollar.

The amount of promotion, of course, will be connected with the money invested in the conditioners. Monsanto clearly has the biggest stake. It kicked off its promotion New Years Day, with a magnificent float for the Pasadena Tournament of Roses parade, co-sponsored with the Southern California Floral Assn. (*CW Newsletter, Jan. 2*). This venture was encouragingly successful, winning the President's Trophy in its category.

Harder Dollar: Advertising this year will be up against a public that is not as flush as it has been in the past two years. Though most economists don't predict a particularly bad year in '54, price of soil conditioners puts them in a luxury class to most householders.

Nearly all retailers declare, as they did last year, that the soil conditioner price ticket is much too high. One West Coast dealer puts it this way: "Reduce the price of the conditioners 25-50%, and we'd sell 50-100% more."

Nevertheless, in spite of the warnings, and the possible slight reductions that might be made possible by the 14% raw material price cut, no formulator admits to plans to lower the tag. (A similar reaction to the pricing question prevailed last year; there were, however, reductions later in the season.)

As a result, some garden supply dealers are recommending that gardeners stick with peat moss, manure, and leaf mould for rebuilding their soils. "For half the money you can use organic matter, do the same job, and feed the soil at the same time." (It's apparent that the big claim of chemical conditioner makers, concerning the permanence of the treatment, is lost on many dealers.)

Money in the Till: Monsanto apparently intends to continue to push Krilium for the commercial grower, a fertile ground—as the parade endeavor with the floral association indicates. Numerous experiments show that conditioners can make money-saving improvements in the tillability of soil, promote seedling emergence, and hasten maturation of plants.

Along with the findings on how the conditioners can boost soil value, has come an increasing knowledge of their limitations. Work with them still going on at the New Jersey Agricultural Experiment Station shows that even heavy application of conditioners (as much as $2,000 worth an acre) doesn't raise the yield of such acreage enough to make the deep application profitable. The tests, run in good, light soils cropped several times a year, show that large-scale truck farming won't be a big outlet for SC's until the price comes 'way down. Other of the Jersey experiments, though, showed the importance of strip application of the conditioners to speed seedling emergence.

Bigger and Better: For commercial gardening or for home gardening, most SC retailers find that large packages of conditioners sell best. The compounds are currently offered in various sizes of containers—from envelopes suitable for a potted plant up to heavy bags. Dry forms apparently outsell liquid forms.

There will be few innovations in formulation, packaging, or application this year, a survey of producers indicates. The mix-in-water-and-spray products, however, seem pretty well on the way out for home use, although certain commercial procedures make use of them.

New attitudes, rather than new products, seem to be the novel angles regarding SC's in '54. At first there was a tendency for many producers of products that altered (permanently or temporarily) soil characteristics to tag their materials "soil conditioners." This included treatment with organics like manure and peat moss, and addition of minerals like vermiculite.

Monsanto prefers to restrict the term to products that are synthetic polyelectrolytes, which include the commonly used sodium polyacrylate and the vinyl-acetate maleic anhydride types. Several other firms disagree strongly, it was made clear at the FTC's get-together. Synthetic polyelectroylytes excludes moss and vermiculite, and material like Stauffer's Flotal as well.

Bad Name? Perhaps indicative of the decreasing regard industry holds for "soil conditioner" is the position of Atlantic Refining Co. That firm has developed a soil additive called PR-51, a synthetically produced wetting agent (*CW, Dec. 5, '53*). Applied to the soil, it improves the ability of the earth to take up water. Atlantic has emphasized that since PR-51 does not alter soil structure, it must not be

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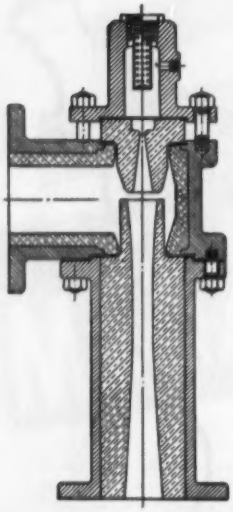

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GRANULAR MURIATE OF POTASH 60% K_2O Min.

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UNITED STATES POTASH COMPANY, INCORPORATED

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termed a soil conditioner.

PR-51, however, will not be offered commercially this year, though Atlantic says it will continue field testing the material.

Two-Year Shakedown: With the changed attitude toward conditioners has come a stabilization among the producers of the artificial humus makers. Most of the firms in the field out to make a quick buck have retired—some not only without a quick buck, but also considerably in the hole. The lure of easy profits has gone—from now on, it will be a matter of careful, intelligent promotion.

Nearly all the vast potential—in land worthwhile treating—remains. But whether the "potential" is all potential profit is yet to be seen.

Chemical Snowshovel

"Won't harm children," "won't pit concrete," "clean, no messy residue" —those are the slogans some makers of snow removal compounds are using these winter days. They are selling points that appeal to the housewife, and it's the housewife whom compounds makers are out to woo.

Salesmen of the veteran snow disintegraters, rock salt and calcium chloride, aren't pleased with the selling literature of new products. They say the "fear theme" is being over-

HOME-OWNER BAIT: Increasing competition for rock salt on snowy walks.

done. While there may be truth in this, it's also true that salt and calcium chloride have been criticized when they're called upon to play a snow or ice-melting role. For instance, it's still being debated whether the salts speed corrosion of automobiles, whether they cause spawling of concrete surfaces.

But while the newcomers are get-

New SD Process
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NAPHTACHIMIE

First European Producer with New Process

Climaxing 7 years of development, SD's new direct oxidation process for producing ethylene oxide at low cost has now reached successful initial operation . . . at Naphtachimie's new L'Avera plant near Marseille, France, also designed by SD. Naphtachimie is not only first in Europe, but first new producer in the world since 1938 to use such a process. And performance to date, they report, has actually exceeded design specifications. You, too, will profit by utilizing SD's specialized experience in organic chemical plant design. Their services are available to you, on a confidential basis, on any problem involving a process of your own, or one to be procured or developed.

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- ☐ BORAX GLASS
- ☐ AMMONIUM BIBORATE
- ☐ AMMONIUM PENTABORATE
- ☐ POTASSIUM PENTABORATE
- ☐ POTASSIUM TETRABORATE
- ☐ SODIUM METABORATE
- ☐ SODIUM PENTABORATE
- ☐ ANHYDROUS RASORITE
- ☐ RASORITE SPECIAL CONCENTRATES
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ting sales by stressing the alleged shortcomings of the standbys in their advertising copy, they are also exploiting packaging methods. Thus, Melt (*see cut*) made by The Chem Industrial Co. (Brooklyn, Ohio) can be bought in a showy 25-lb. pail and so can Ice Rem, a product of Speco, Inc. (Cleveland, Ohio).

What's more, these two products sell because they do the job they're sold for. Both are compounds of aluminum, potassium, and calcium with a phosphate inhibitor. It's the inhibitor that makes Melt "safe for all metals," according to its maker. Though Melt has been marketed for two years now, it's only been in the past two months that it has been pushed for home use.

Speco's Ice Rem is older by five years and more established as far as housewives are concerned. It won the National Safety Award for Home Safety in 1951. Speco says as an ice melter it's 30 times more effective than salt, 10 times more effective than flake calcium chloride.

Old Stuff, New Pack: Another, Ice-Off, comes in a handy household package containing six 2-lb. cartons with a pouring spout. It's manufactured by The Surface Protection Co. Inc. (Cleveland, Ohio).

Still another is Ice-Foe, marketed by Walton-March (Chicago). These last two are essentially anhydrous calcium chloride. They also contain small amounts of aluminum and potassium chlorides.

The price of all these products—even lowest-priced Melt at $11.50/100 lbs.—is considerably higher than what a housewife would pay if she bought flake or anhydrous calcium chloride without a tradename attached to it. In the East, Dow's anhydrous form per 100 pounds retails from $4.50-$5.00, flake from $3.75-$4.00.

But 100 pounds of anything is little on the heavy side for the normal housewife. For this reason, Solvay Process Div., Allied Chemical & Dye Corp., recently began offering a 25-lb. bag of flake calcium chloride in hardware stores, other retail outlets. Price: $.95-$1.10.

Conspicuously displayed on the bag is the fact that calcium chloride can be employed to:

- Absorb moisture
- End dust
- End slippery ice
- Accelerate concrete.

Also stressed is that it's "clean-odorless, colorless, easy to apply, safe to use." Solvay thinks that mild winters will prompt retailers to be more interested in an untradenamed product when its year-around uses are emphasized.

But specialty houses that make

Plaskon 3120 has been recognized since 1947 as one of the highest quality alkyd resins. It is a preferred ingredient in white baking enamels for refrigerators, ranges, and other home appliances. Glycerine-based Plaskon imparts qualities of durability, gloss and adhesion to these enamels.

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Good color retention, adhesion, and film toughness are of primary importance in baked coatings, interior and exterior enamels, automotive undercoats, general industrial air-drying primers, and coatings for metal furniture and equipment. Glycerine alkyds are favored as vehicles for coatings of this type.

Not only does Glycerine impart the desired properties to the resin. It also simplifies the resin-making process because it is so easy to handle. Its cooking qualities are excellent. It is easily controlled to give a product of low acid number without undue hazard of gelation.

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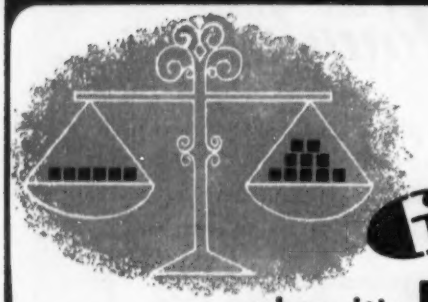

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SPECIALTIES. . . . . .

snow removal compounds aren't leaving any stones unturned either. They're shipping their products to parts of North America where there's always plenty of snow. They're shipping to Canada and Alaska.

•

Skin Savers: Hygiene Research, Inc. (New York) now offers two new skin protecting ointments for industrial use. Clerex, a gel, is said to offer protection against organic solvents. Hydrepel-A and -S are creams claimed to protect against water and water-solutions.

•

Uncle Sam's Hand: A Texas chemical specialty firm, Sun Products Corp., Waco, received help last week in recovering from recent tornado damage. A Small Business Administration loan of $42,500 was made available to put the firm back on its feet; 10% of the loan will be handled by local bank.

•

Thin Face: In production Jan. 1 was a new product of Kraftile Co., (Niles, Calif.). Thin Veneer, as the product is called, is a lightweight tile facing, said to weigh only a third of standard tiles of terra cotta. Only 3.8 in. thick, it is offered in two sizes, 12 x 16 in. and 16 x 24 in., can be applied in the standard manner.

•

Elbow Room: Moreland Chemical Co., a supplier of textile chemicals, Spartanburg, S. C. is planning a new $350,000 plant. The 50,000 sq. ft. structure is expected to be ready by June of '54.

•

No Slump: Aerosol firms certainly found 1953 to be a big year. Typical is the growth of Bostwick Laboratories, Inc. (Bridgeport, Conn.), one of the largest pressure-packed product firms in the world. The firm reports a 20% increase in sales and volume over '52. Looking ahead, Bostwick's Vice-Pres. Jack Schenberg anticipates a 30-50% business increase in 1954, for the industry in general.

•

Duller, Cheaper: Available since last May in experimental quantities, a new dull (opaque) nylon yarn is in full commercial production by Du Pont. The new yarn sells at a 10¢/lb. premium charged for the experimental lots.

•

Drywall: Seal-Strip, Inc. (Woodside, N. Y.) is just introducing a new type of masonry paint. Designed to prevent wet walls, the new plastic paint can be applied to asbestos, limestone,

Get Better Protection, Faster Packaging at Lower Cost With This Model ET Bagpaker®

CLOSES OPEN-MOUTH, MULTIWALL PAPER BAGS SEMI-AUTOMATICALLY . . . TAPES AND SEWS 15 BAGS A MINUTE . . . TEAMS UP WITH YOUR EXISTING FILLING AND WEIGHING EQUIPMENT TO INCREASE PACKAGING EFFICIENCY

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SPECIALTIES. . . . . .

stucco as well as to concrete.

The paint is a sealer, rather than a water repellent, and can be applied by brush or spray either inside or out.

•

New Lab: General Electric Co. is building a new $300,000 laboratory at Schenectady to expand activities in radioactivity and radiation.

•

Eastern Office: The American Bitumuls and Asphalt Co. (San Francisco) is establishing an eastern division office in Baltimore, Md.

•

4.9 to the Good: Sales for the paint, varnish and lacquer industry for the first 10 months of last year were $1,211,120,000, according to the National Paint, Varnish and Lacquer Assn. This is an increase of 4.9% over the same period for 1952.

•

Southern Company: Colonial Chemical Corp. has been incorporated in Richmond, Va., with capital stock of $50,000. It will sell lacquers, cosmetics, flavorings, adhesives.

•

Hand to Hand: Lady Esther, Ltd., which changed hands twice last month (*CW, Jan. 2*), has been sold again—to Zonite Products Corp. by the Lansing Foundation.

•

Sanitary Spray: Haynes Manufacturing Co. (Cleveland, O.) is making an aerosol-packaged spray aimed at doing away with finger-wipe methods of lubricating dairy and food processing equipment. Haynes Spray has a petroleum base, is odorless, tasteless, nontoxic. It comes in 12-oz. containers, is distributed through dairy supply jobbers.

•

Emphasis on Economy: Eston Chemical Div., American Potash & Chemical Corp., now offers a toxaphene spray insecticide, Estonox. In two formulations—Estonox –40W and –60E—the product is said to have these advantages over dusts: it can be applied over a wider range of weather conditions, it is "more economical under most conditions than dusts, from the standpoint of both labor and material", it is less apt to 'drift' than dusts.

•

Fiber Cleaning Oils: Nopco Chemical Co. (Harrison, N.J.) says the answer to soiling problems in synthetic fabrics lies in its new line of detergent-containing processing oils. Nopco 1056-A is recommended for slasher-size yarns; Nopco 1056-AR for fine-denier yarns that demand low tension control; Nopco 1125-P for yarns that become soiled in processing.

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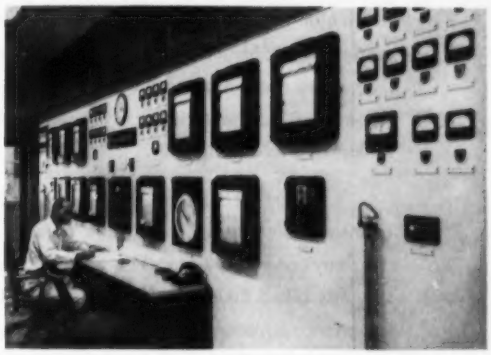
proves the value of experience

New ACID REGENERATION PLANT

more than meets performance requirements



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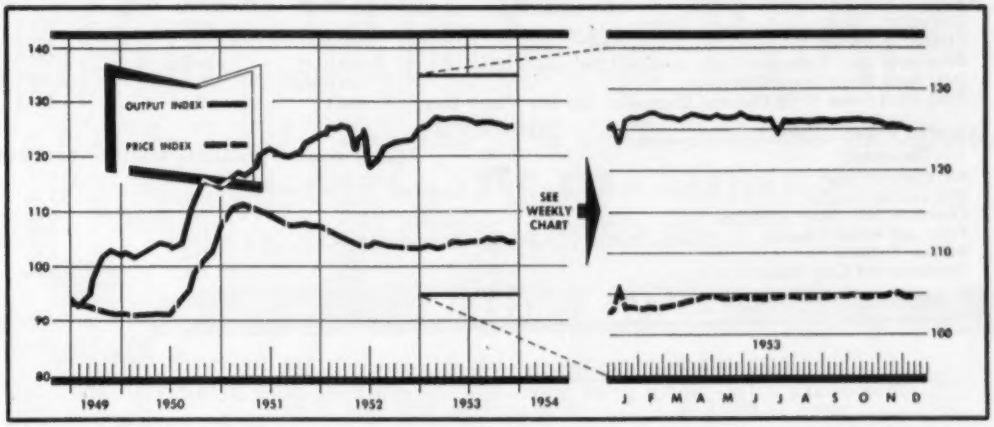

CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

Typical topic of discussion these days 'twixt chemical sellers and customers is product price. The former, stepping up their order-hustling, are facing some buyers who are convinced that more chemicals may be due for a supply-slackening. And with the easing could come more downward revisions of makers' schedules.

But there's also a strong countercurrent of belief that recent price-adjusting readiness (for increased availability reasons) is petering out. Why? Production cutbacks over the past weeks, plus consumers' new-quarter restocking of year-end depleted inventories, is effectively blotting up much of the previous excess.

•

More likely chemical tag-changers in the future will be competition, lower (or higher) production costs, revisions in raw material prices. Indicative of the trend are this week's lower natural phenol schedules.

It was a foregone conclusion (CW Market Letter, Jan. 9), that the 2¢/lb. cut in synthetic would pressure natural to lower levels despite the fact that producers aren't having too much difficulty moving fair amounts of the technical material.

The reductions set a new tank car price for 90% phenol at 14¢/lb.; c.l. (in nonreturnable drums), at 15¾¢, delivered east of Denver.

•

Increase in production costs is behind Freeport Sulphur's nudging of domestic and export prices late last week. The not-too-substantial hikes (e.g., 50¢/ton vs. last year's increase of $4 for exported material) reflect the new Freeport mines problem: less accessible deposits, with construction and operating costs concomitantly higher than at older mining sites.

No. 1 U.S. producer Texas Gulf's contribution to a more uniform sulfer pricing picture is a $3/ton jump in its overseas schedules. One dubious advantage of a nonsplit market: it should eliminate resentment by consumers who were not always able to get all the lower priced material they needed.

New tags now posted by the two top concerns: f.o.b. at the mine $26.50; domestic Canadian port, $28/ton; export other than Canada, $31.

WEEKLY BUSINES INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	124.1	120.0	126.0
CHEMICAL WEEK Wholesale Price Index (1947=100)	105.0	105.1	103.1
Bituminous Coal Production (daily average, 1,000 tons)	1,388.0	1,545.0	1,530.0
Steel Ingot Production (1,000 tons)	1,788.0(est.)	1,798.0(act.)	2,238.0
Stock Price Index of 13 Chemical Companies (Standard Poor's Corp.)	266.8	267.6	262.3

MONTHLY INDICATORS—Ebployment (Thousands)	Latest Month	Preceding Month	Year Ago
All Manufacturing	13,345.	13,624.	13,634.
Non-durable Goods	5,570.	5,694.	5,718.
Chemicals and Allied Products	510.	512.	518.
Paper and Allied Products	451.	453.	435.
Rubber Products	203.	210.	217.
Petroleum and Coal Products	184.	186.	188.

Competitive price moves—which some market followers believe may spark a full-blown price war—has the synthetic fiber industry in an uproar.

Biggest slash to date is Chemstrand's 45¢/lb. cut in its Acrilan staple. That follows a reduction of 10¢/lb. in Orlon staple prices, which was posted earlier in the week by Du Pont.

On the other hand, Chemstrand's action may be just the start of a concerted drive to recapture lost markets after last year's Acrilan fibrilation (breaking off of strands) hubbub (CW, Aug. 8, '53). At that time the huge 30-million-lb.-capacity acrylic fiber plant at Decatur (Ala.) was practically shut down.

The company now claims the bugs have been eliminated, says it will shortly whip into volume production again.

•

Some significant phenolic price cuts by Bakelite go into effect immediately. Reductions in molding materials, resins and resin solutions emphasize the increasing role price competition will henceforth play in the nation's market place.

Until now the firm's molding material schedules have been slightly higher than most other companies, but in the current sellers'-to-buyers'-market switch, customers are beginning to look at the price tag first, are more than ready to place orders with the lowest marketer.

In the main, other producers are falling into line with the newly reduced prices for unmodified phenolic resins and solution. And though business at the moment is being labeled "normal," at least one sales-pushing producer facetiously expresses the hope that it will get better in the next month or so.

•

There's no hope of a bettering nickel supply, however. When the government shucked all controls (CW, Oct. 31, '53), industry took over the allocation-to-consumers chore, has to date been doing a good job of it.

But trade talk that Washington is about ready to launch some stockpile buying again has hard-pressed consumers in a dither. The siphoning would induce a further tightening in the still-critical nickel supply condition.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending January 11, 1954

DOWN

	Change	New Price		Change	New Price
Antimony trichloride, anhy., pails, c.l., works	$ .045	$ .385	Phenol, 82-84pcs, tanks, same basis	.02	.135
Phenol, natural 90-92pcs, tanks, frt. alld. east of Rockies	.02	.140	Sodium silicate, sesqui, hydrated, drms., c.l., works 100 lbs.	.60	4.90

All prices per pound unless quantity is stated.

More SALES APPEAL

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(in any color under the sun)

PLASTIC BOTTLES

Leakproof atomizer or spout and closures. Hot stamped printing of your label and copy in ½, 1, 2, 4, 6, 8 and 12 ounce sizes. All parts manufactured in our own plant assuring you perfect fit. A complete container ready to fill with powder or liquid.

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U·S·S Coal Chemicals

UNITED STATES STEEL

	1950	1951	1952 (in million pounds)	1953	1957
CARBON BISULFIDE output is inching up:	426.1	484.0	476.0	505.0	550.0
And here's where it goes:					
High tenacity viscose (tire cord):	101.6	110.0	134.0	156.0	172.0
Other viscose (textile rayon):	162.6	170.0	120.0	130.0	178.0
Cellophane:	60.6	66.4	66.0	70.0	78.0
Other outlets:	101.3	137.6	156.0	149.0	122.0

Bisulfide Forecast: Fair, Partly Cloudy

Some recent developments, glossed over as unrelated by most chemical market followers, nonetheless hold more than a modicum of interest for at least one segment of the allied chemical process industries – carbon bisulfide producers and consumers.

The attention-getters:

• Dismissal of the government's civil suit filed six years ago against major cellophane maker Du Pont for allegedly "monopolizing" the manufacture and sale of the transparent film;

• Issuance of the textile industry's year-end look-see at man-made fiber production and capacity with some pertinent detailing on rayon and acetate;

• Increased sulfur availability, underscored by last month's start of mining operations at Freeport Sulphur's whopping Garden Island Bay (La.) facilities;

• Imminent–probably this week–onstreaming of a spanking new carbon tetrachloride-perchlorethylene plant at Louisville (Ky.).

For, running through the isolated incidents like a story plot tying together rayon, acetate, cellophane, carbon tet and sulfur, is carbon bisulfide.

Some chemicals grow with an industry, but bisulfide is triply sponsored. Though small amounts filter into a raft of outlets, bulk of current production is gobbled by three uses; rayon–top consumer by a wide margin, with carbon tetrachloride and cellophane, in the past few years, jockeying for second honors.

But most eye-catching market aspect of the carbon bisulfide situation is the complete flip-flop in availability over the last two or three years. As recently as late 1951 producers were hard-pressed to meet mounting civilian and defense-favored needs such as rubber accelerators, and the production of carbon tet for Freon-type propellants and refrigerants. Big reason for the distress, of course, was lack of sulfur, for some 1700 lbs. of brimstone is required for every ton of carbon bisulfide produced.

At the moment, however, though the market is far from a glut condition, U.S. producers have sufficient capacity to forestall any consumer-slighting. Stauffer Chemical – with eight carbon bisulfide producing plants–in the main snuggled close to viscose installations throughout the country–is top man on a pyramid of five. Some observers peg the traditionally tight-lipped company as accounting for approximately 65%-70% of total domestic output. Westvaco, Dow, J. T. Baker and Old Hickory Chemical (a Du Pont-Stauffer controlled firm) split up the balance.

To gauge with any degree of accuracy the carbon bisulfide market as it is today, and as it's likely to be in the not-too-distant future, it's necessary to take a close look at market conditions involving the principal uses. With present production already hovering above the 500 million lbs./year range and expected to hit 550 million within the next three years, carbon bisulfide followers are evincing more than a passing interest in the outlets outlook.

Carbon Bisulfide End Use Pattern 1953 (Est.)

Rayon	**56.0%**
Carbon tetrachloride	**14.0**
Cellophane	**12.0**
Rubber accelerators	**5.7**
Flotation agents	**0.7**
Export, other	**11.6**

Rayon Rundown: Biggest bite in the bisulfide pie is taken by rayon. High tenacity viscose and textile viscose rayon together consume more than half the U.S. production (see percentage end use pattern).

The former is used almost exclusively in making tire cords for automobile and truck tires. Viscose yarn's move into this field has been spectacular. Less than 10 years ago only 46 million lbs. of the 249 million lbs. of tire cord and fabric produced was rayon–a scant 18%.

By this year high tenacity rayon may gobble over 90% of that market. Cotton, of course, is the loser, but the rayon displacement is just about complete. One conclusion becomes apparent: further boosts in H.T. rayon consumption will be less explosive, will be limited by growth of the vehicular and farm equipment tire demand. The burgeoning, too, will also be modified by nylon inroads on the tire market. (Since 1951 use of nylon in tires has more than doubled, may well reach a 10-11 million lbs. consumption level this year.)

One studied estimate pegs tire demand at around 104 million tires for 1953. (That includes new equipment and replacement tires.) By 1957 it is unlikely that total demand will top 107 million. Result: a comparatively modest increase in high-tenacity viscose needs over the next few years. Production in 1955 will probably amount to 508 million lbs.; hop to 517 in 1956; by the following year perhaps touch 525 million lbs. Translated into carbon bisulfide requirements, that equals a 172-million-lb. market by the latter year (*see table*).

Slumping and Climbing: The situation in viscose rayon yarn for textile fibers (both the regular tenacity filament yarn for straight rayon fabrics and staple and tow used in blended fabrics and pile constructions) is some-

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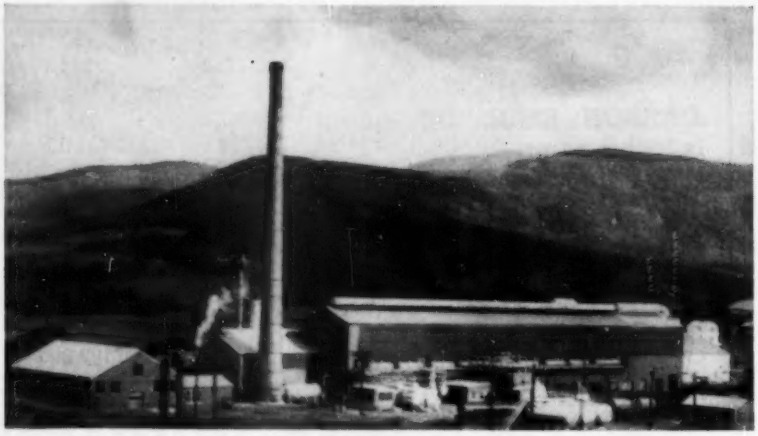

BISULFIDE OUTPOURING: No. 8 plant makes Stauffer No. 1 maker.

what more complicated.

Some industry pessimists are describing the current textile slack as the "worst slump in recent years," are predicting that sharper curtailments in the production of rayon (and acetate) fabrics are a must for the first quarter of this year if any recovery is to be made. It's true that the rayon industry is running at only a fraction of its capacity, but this is also a fact: despite violent year-to-year fluctuations, there is a definite uptrending growth-line evident over the years. In 1933 textile rayon had latched onto about 5% of the total textile market—about 174 million lbs. of an estimated 3,500 million—and by the peak year 1951 had managed to edge in for about 8.4%. At least one rayon booster sees textile rayon production hitting a healthy 570 million lb./year rate by 1957—another 0.1% above '51's market clip.

If that target is bull's-eyed, carbon bisulfide producers will be assured another 178 million lbs. outlet three years hence. But that hyberbolic hope may be pummeled by the continuing impact of synthesized fibers on future rayon production. Nylon, of course, will land the heaviest blows. This year should add a near-100 million lbs./year capacity to the nation's facilities. The expanders: Chemstrand, Allied, American Enka.

Though most acrylic staple fibers are currently running below capacity, a long-term growth pattern cannot be overlooked. Add too, the probability of a new Union Carbide Dynel plant, and an X-51 installation by American Cyanamid, and the conclusion is apparent: textile rayon demand and production may well climb but the road ahead is uphill.

One stout walking aid, however, is price. Note the list of recently published representative tags on the competing staples. Despite late last week's cut of Orlon and Acrilan prices (10¢/lb. on the former, about 45¢/lb. on the latter), rayon is by far the least expensive.

Representative Staple Prices

Rayon	**$ .35**
Acetate	**.35**
Dacron	**1.80**
Orlon	**1.80**
Acrilan	**1.40**
Dynel	**1.28**
Nylon	**1.70**
Vicara	**1.00**

And even with further cuts that may come with full-blown production, chances are nil that fiber prices will ever be on a par with rayon.

Cellophane Clearer: Market facets of cellophane, another tine of the carbon bisulfide consuming trident, are usually far from transparent. But though it is difficult to pinpoint production and consumption factors, some fairly accurate "guesstimates" highlight the over-all picture.

Output in 1949 was estimated at somewhat above 210 million lbs. Pioneer Du Pont had about 75% of U.S. capacity firmly tucked under its wing. Sylvania Products Division (American Viscose) wrapped up the other 25%. At that time the latter posted plans to up production to near 100 million lbs. That same year, Olin Industries, under Du Pont guidance and license, served notice that it would build a 33-million-lb. plant.

The new cellophane productive capabilities, plus the major maker's subsequent expansions and improvement, will boost the firm's output potential to a not-too-far-off 320 million lbs./year.

During the peak year '51, production from the three makers zoomed

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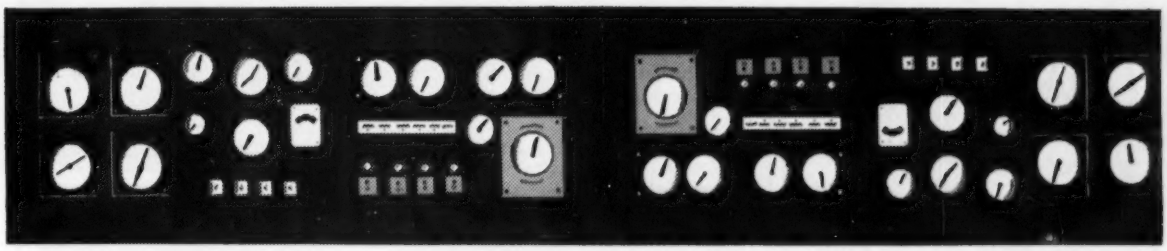

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to about 280 million lbs. Output tapered off the following year, for a generally advanced "excessive inventory" reason.

But by mid-'53, demand had perked enough to blot the excess, again crowd the 300 million lb./year mark. Du Pont's expansions—at its Richmond (Calif.) and Clinton (O.) plants—due for completion this year will add another 20-25 million lbs. to U.S. cellophane capacity.

There are a few potent demand-brakers on swift-moving cellophane:

- Present markets may be relatively saturated;
- Inroads being made by newer films (e.g., polyethylene, Pliofilm, Cryovac, etc.).

In light of these factors, it seems unlikely that cellophane demands will rise more than about 10 million lbs. per year through 1957. Olin Industries, however, optimistically plans to construct another new plant sometime after that date.

With production thus pegged at some 330 million lbs. three years from now, carbon bisulfide producers can reasonably chalk up another 78 million lb. outlet.

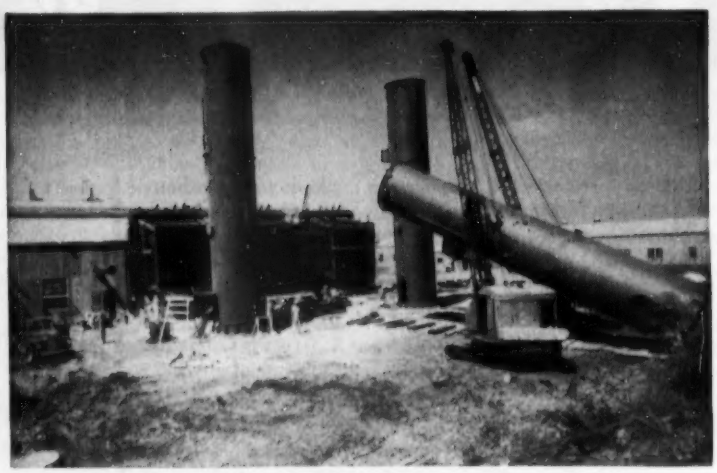
Fair, Partly Cloudy: Summing up, it looks as if the three main consumers of carbon bisulfide will continue to be assured outlets for the organic compound.

There is, however, a slightly beclouding development in the carbon tetrachloride arena. Though most of the carbon tet producers continue to produce via the carbon bisulfide route, output from Stauffer's new Louisville plant will stem from the growing alternate hydrocarbon chlorination method. On the surface the switch seems surprising. The company explains the move, though as "insurance." Producing carbon tet by both processes lessens the possibility of any raw material shortage.

Loss of the one intracompany bisulfide blotter, though, may well be offset by several expected-to-mushroom uses. Among them: flotation agents, insect control, weed eradication, other chemicals (thiocarbanilide, thiocyanates, cyanates), solvent uses, rubber production, etc.

But although the end-use pattern may conceivably undergo some drastic changes, carbon bisulfide customers have historical assurance of one stable factor—cost per pound. In nearly a quarter of a century the bisulfide price has rarely dropped below 4¢ (tanks), or pushed through a 6¢/lb. top.

All in all, the past history of—and the future prospect for—carbon bisulfide can be summed up like this: stable, steady, but unspectacular growth.



Brimstone Quartet

SETTING UP the last of three large heat reclaimers (*see cut*), derricks maneuver into place at Freeport Sulphur Co.'s (New York) newest sulfur strike, Nash dome near Houston (Tex.).

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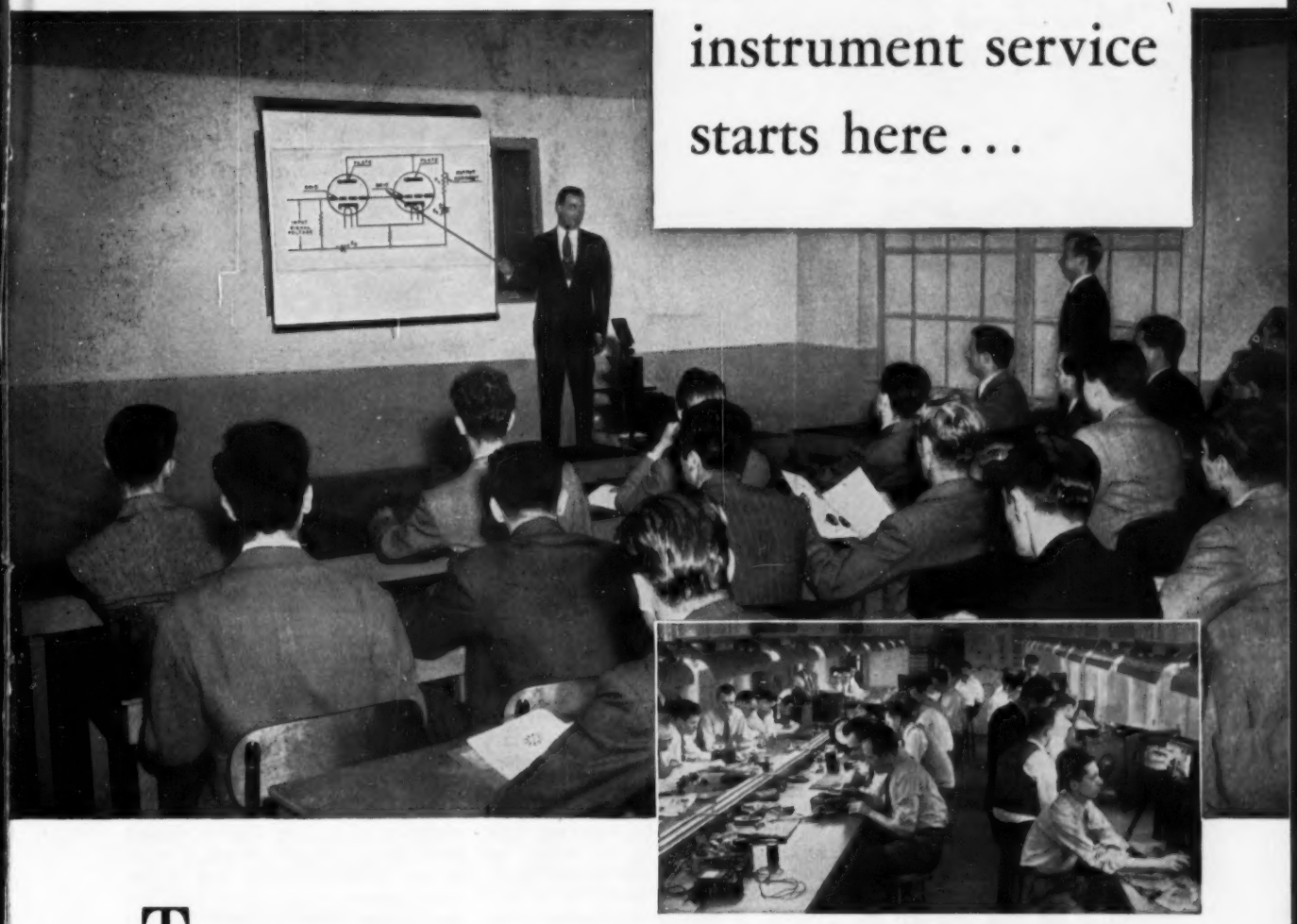

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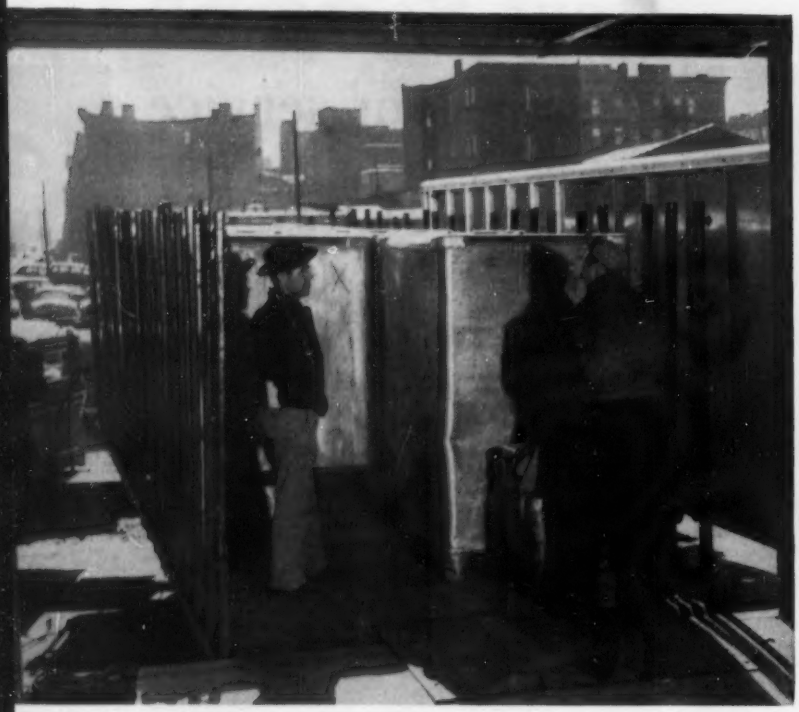

AT LIPTON'S HOBOKEN PLANT: It started with foods, but now chemical companies are taking the clue on . . .

Boxing the Compounds

Having opened its bag of tricks on more than one occasion for other industries to see, the chemical industry is not averse to borrowing a good idea from someone else. That's what it gives promise of doing with a materials handling system well established in the food industry: the Tote System, developed by a firm of the same name in Beatrice, Neb., for bulk handling of solids.

Whether you look on it as "the blood stream of the factory" (as did Pioneer Industrial Engineer Frederick W. Taylor) or the "last industrial frontier for cutting costs" (as do materials handling equipment suppliers), the business of lifting things up, moving them around and laying them down in the plant is a big one. Figures for 1953 are not in yet, but the Material Handling Institute reports that its industry's sales of equipment totaled $1.25 billion in 1952, estimates that in '51 all industry spent over $9 billion over-all just for moving things around.

For the equipment makers, one of the juiciest plums in this market is the chemical process industry. That's what Tote Systems, Inc., is now angling for.

Put It in a Box: The Tote System is simple enough. It's based on portable aluminum bin boxes (Tote Bins) set on short legs for handling with fork trucks. The bins are loaded by means of a jolter and spinner head. And when they're ready to be unloaded, a special mechanism (*see cut*) converts them into a 45-degree-angle hopper discharge.

Tote figures the system is a natural for either moving material between plants or for moving it around in the same plant. It points out that by using them for interplant work, you can get a sizable raw material discount because of the elimination of expendable containers. And when used inside the plant, it claims the system not only cuts labor costs and reduces storage space requirements, but it also eliminates product losses and the chance of contamination from outside sources.

Currently, several of the big chemical companies are investigating the Tote System. And several companies are already using it for products including phthalic anhydride, polystyrene, synthetic detergents and carbon black.

National Plastics Products Co. (Odenton, Md.) uses 75 of the bins to haul resins to its plant. Five company trucks, each handling 15 bins, make a 1,500-mile round trip in accordance with production schedules.

On Two Fronts: A complete installation of a Tote System doesn't come cheap, by any means. For instance, General Electric, one of the early process industry customers for the system, spent $95,000 for 100 bins, 16 tilts and auxiliary conveyor, chutes, steel, wiring and scales at its Chemical Products Works in Cleveland. But GE figures the installation will pay for itself in short order.

GE is using the bins for handling precipitated calcium acid phosphate and carbonate and fired complex calcium phosphates. Since the particle size of the product is small (down to five microns), transferring them created a dust problem. And it was entirely too valuable to be drawn out through a ventilating system.

With the use of bins, it has eliminated the dust problem as well as the chance of contaminating the product. It figures a savings of $10,000/year. Moreover, it feels that the bins are easier to handle, that one 74-cu.-ft. bin can replace up to 20 drums. It estimates that direct labor costs at the unit have been slashed by $16,000/year. And though the dust

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AT NATIONAL PLASTICS: Resins arrive in bins, are unloaded . . .

Boxing the Compounds

Story begins on p. 82

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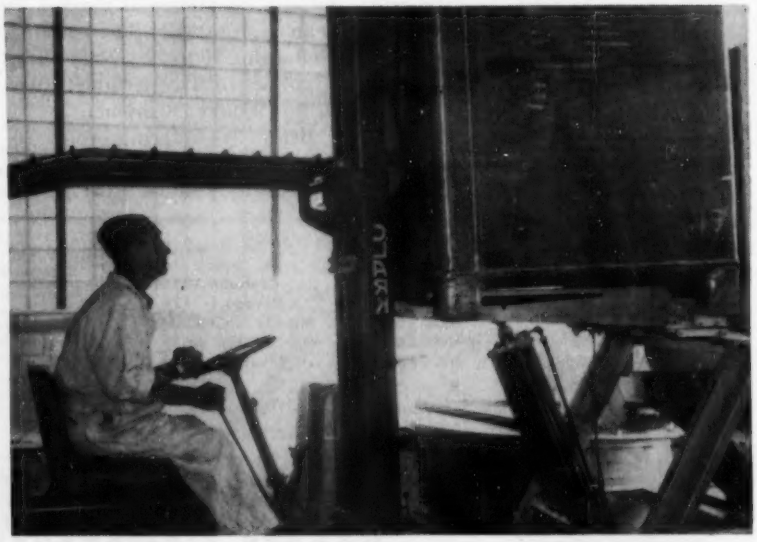

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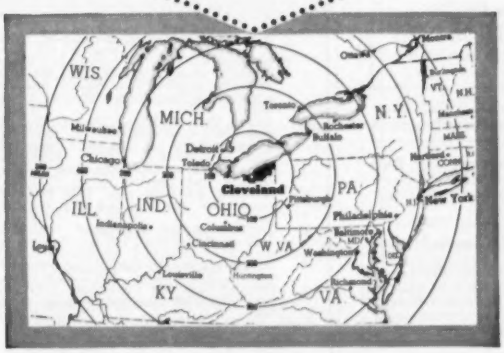

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250	Oxygen Cylinder, 150 Cu. Ft., new, round bottom ICC-3A-1800	$18.50 each
150	Oxygen Cylinder, 40 Cu. Ft., round bottom, new ICC-3A	9.50 each
300	CO2 Cylinder, 5 lb. round bottom, new. ICC-3A-1800	6.00 each
2	OXYGEN PLANTS, Independent O2-B, new, 600 Cu. Ft. per hour, 20-25 meters, complete less power unit	4,500.00
1	OXYGEN PLANT, same as above but trailer skid mounted	5,000.00
1	ACETYLENE PLANT, Linde, used, 500 cu. ft. per hour, complete, ready to run, excellent shape	5,000.00
1	OXYGEN PLANT, Air Products, 600 cu. ft. per hour, complete, liquid pump type, used slightly but completely overhauled by factory	8,500.00
15	Kidde Type 2 Wheel Trailer Fire Extinguishers with 6 each 50 lb. and 2 each 15 lb. CO2 fire ext. and 90 ft. hose. Complete, never used	395.00 each
1	O2-B Oxygen Column Only, New, 1000 cu. ft. per hour capacity.	1,800.00
1	Nordberg Air Compressor, 1000 PSI, 5000 cu. ft. per hour, run less that 100 hours	2,500.00
1	Nordberg Oxygen Compressor, 2250 PSI, 1500 cu. ft. per hour, run less than 100 hrs.	2,500.00
4	Oxygen Compressor, Curtis, new, 2250 PSI, 750 cu. ft. per hour	750.00 each
1	Ingersoll-Rand Air Compressor, high pressure, 2500 PSI Type #40, 5000 cu. ft. per hour	1,750.00

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process industries

EQUIPMENT--used-surplus

For Sale

Ball Tube Mill *3′ x 6′ Kennedy Van Saun Con*tinuous, air-swept mill with drive, feeder, fan and steel balls. Perry Equip. Corp., 1415 N. 6th, Phila. 22 Pa.

Filters: Shrivers, Sperry, Sweetland, etc. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Stainless Steel Tanks—25 gal. to 5,000 gal. capacity—quick delivery. Quaid Fabrications, Inc., 157 W. Oxford St., Phila. 22, Pa. GArfield 6-7630.

Tanks Aluminum. compartment—2,700 gal. & 3000 gal. Perry Equip. Corp., 1415 N. 6th St., Phila. 22, Pa.

Tanks, S/S—8,000 gal to 2½ gal. Perry Equipment Corp., 1415 N. 6th St., Phila. 22, Pa.

Tanks, Steel, 15,000 gal. with 970′ of 3″ Coil and 40 HP vertical agitator, Perry Equip. Corp., 1415 N. 6th St., Phila. 22, Pa.

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was not toxic, it was irritating, and GE thinks the system may minimize any medical problems that might arise from airborne dust.

Beating the Heat

A brief rundown on its ammonia process is given by the M. W. Kellogg Co. in a booklet off the presses last fortnight. The firm points out that it designed three major ammonia plants during the war, has since improved and polished the processes. The new version of the basic process will make its debut in two plants now abuilding.

Costs will vary considerably with the feed stock, site, type of drive for compressors. But these are the ranges for various capacities as estimated by Kellogg:

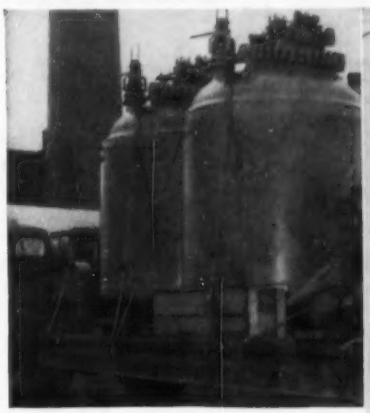
- 60 ton/day plant; $2.2 million to $4.02 million.
- 100 ton/day plant, $3 million to $5.2 million.
- 150 ton/day plant, $3.8 million to 6.65 million.

Big features claimed for the process are high conversion and lowered operating costs. This has been accomplished, says Kellogg, by close temperature control. Here is how it reasons: for an economic conversion rate, the temperature must be close to point where the catalyst deteriorates and materials of construction are attacked.

Thus, it says, the ideal converter is one in which the excess heat is removed rapidly from every point where the exothermic reaction takes place. It feels it has licked the problem by using layers of catalysts with an efficient means of cooling the gases in between. It says, in fact, that the cooling techniques produce a "near isothermal condition in the reactor."

EQUIPMENT . . . .

Glass Clothing: People in glass clothing shouldn't catch fire, reasoned Fyrepel Products Co. of Newark (O.),



Standard for Speed

STANDARD ITEMS instead of custom-built ones are getting to be the fashion for chemical equipment makers. Noting this, the Pfaudler Co. decided last summer to stock a line of standard glass-lined equipment, put itself out on a limb by saying it could fill orders in 10 days. Score so far: 25 units ordered; average delivery time: 8 days. The pictured kettles were installed for a New Jersey chemical firm as a replacement for ones lost in an explosion.

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PRODUCTION. . . . .

so it has started making clothing for plant workers based on Fiberglas insulating material. Fiberglas insulating mat is lined on the side likely to be exposed to flames with aluminized or coated glass cloth. On the other side it's lined with denim, flannel or other material. The net result, says the maker, is a finished garment that gives fire protection, is as much as 500% lighter than conventional protective clothing. Among the items being made this way are trousers, hoods, coats, boots, aprons, hand pads.

•

Predicting Flows: Theoretical calibrations take the place of empirical ones in Emil Greiner Co.'s (New York City) new Predictability flowmeters. Instead of individual calibrations for each fluid, it claims, you can plot the calibration if you know the density and viscosity of the fluid under conditions of flow.

•

New Line, New Firm: Changes by equipment makers last week affecting the process industry:

• Croll-Reynolds Engineering Co., Inc. (New York City) has bought from Titeflex, Inc. (Newark, N.J.) the design and manufacturing rights (in the chemical and processing industries) to the Titeflex industrial filter.

• The International Testing Service as been formed by Jackson and Church Co. (Saginaw, Mich.), will operate as a division to provide engineering services to firms engaged in testing and instrumentation.

•

New Feeder: Fischer & Porter Co. (Hatboro, Pa.) has just brought out a chemical feeder for metering, controlling, mixing and dispensing small proportions of liquid chemicals into liquid streams. Tagged the Feedrator, it sidesteps the need for a proportioning pump. Here's how: a bypass flow in the main line causes a pressure differential. The bypass enters the block housing the feeder at the top, flows down through the ejector to create a partial vacuum on the ejector side. The vacuum draws the reagent being added through an inlet at the bottom of the block, up through the metering tube and into the unit's mixing chamber.

•

Easier Cleaning: The Multi-Metal Wire Cloth Co. (New York) is introducing a filter plate for plate and frame filter presses. Tagged the Multi-Plate, it employs a corrugated sheet metal drainage field supported and welded in a solid rim, is said to be easier to clean and to maintain than competitive plates.

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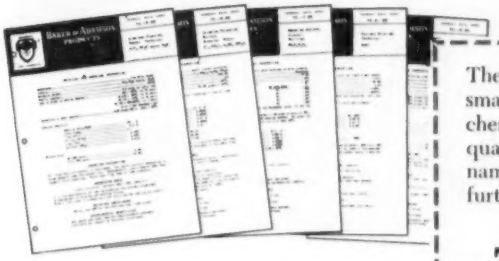

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☐ Aluminum Chloride, 32° Baume Solution	DA-83851
☐ Aluminum Fluoride, Powder, Technical	DA-32521
☐ Aluminum Nitrate, Crystal, Technical	DA-32341
☐ Aluminum Sulfate, Hexahydrate, Technical	DA-48871
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☐ Ammonium Fluoborate, Crystal, Technical	DA-32731
☐ Ammonium Fluoride, Crystal, Technical	DA-32671
☐ Ammonium Oxalate	DA-33251
☐ Ammonium Sulfate, Purified	DA-33151
☐ Ammonium Thiosulfate, Solution, Technical	DA-85271
☐ Barium Fluoride, Technical	DA-34181
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☐ Potassium Cyanate, Powder, Technical	DA-48821
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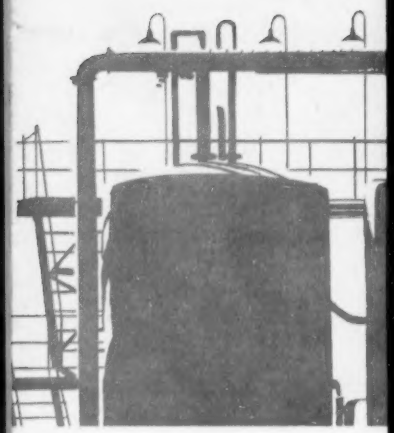

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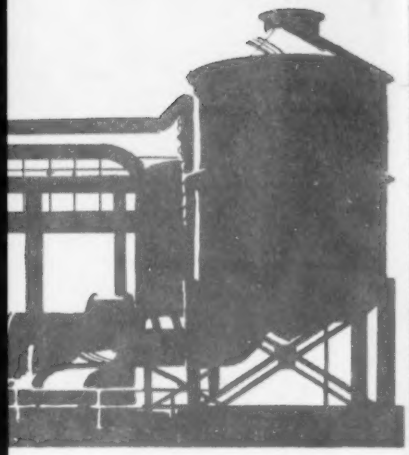

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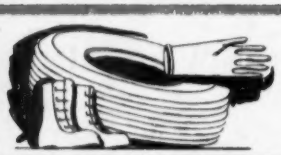

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